SPP-ER1

SERVICE MANUAL

US Model

SPECIFICATIONS

General

Frequency control	Crystal-controlled
Operation mode	FM, duplex
Operating frequency	902.05 – 904.00 MHz, 40 channels 926.00 – 927.95 MHz, 40 channels
Supplied accessories	AC power adaptor AC-T42 (1) Telephone line cords (2) Rechargeable battery pack BP-T18 (1) Wall bracket (1) and screws (4) Hanger piece (1) and screw (1)

Base unit

Power source	DC 9 V AC power adaptor
Power consumption	Approx. 2 W
Dimensions	Approx. 128 x 50 x 235 mm ($5^1/_8$ x 2 x $9^3/_8$ inches) (w/h/d) not including antenna
Mass	Approx. 470 g (1 lb 1 oz)

Handset

Power source	Rechargeable battery pack
Battery duration (After fully charged for approx. 24 hours.)	Approx. 7 days at RING ON mode Approx. 1 month at BATT SAVE mode
Dimensions	Approx. 62 x 202 x 72 mm ($2^1/_2$ x 8 x $2^7/_8$ inches) (w/h/d) not including antenna Antenna: 37 mm ($1^1/_2$ inches)
Mass	Approx. 290 g (10 oz), including battery pack Approx. 230 g (8 oz), not including battery pack

Design and specifications subject to change without notice.

使用時は添付資料も参照のこと
Refer to the additional documents

CORDLESS TELEPHONE

SONY®

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Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270°C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

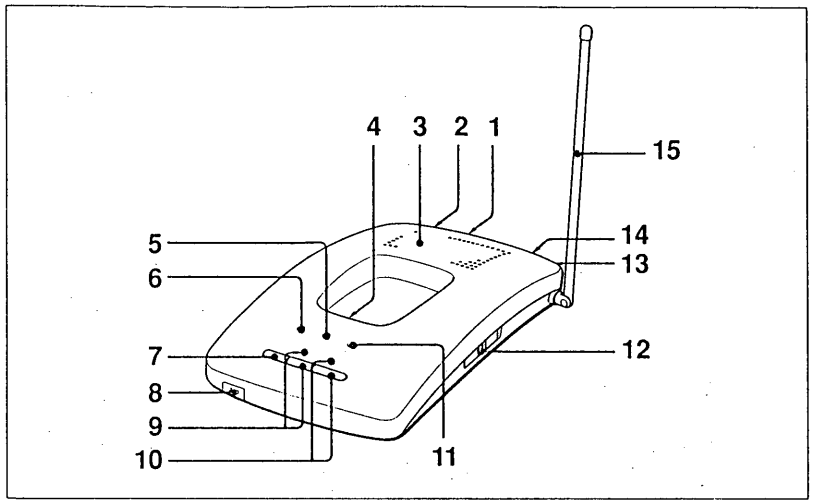
Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

Looking at Your Phone



Base Unit

1 **DC IN 9V jack**

2 **Telephone line jack**

3 **Speaker**

4 **Charge terminals**

5 **LINE lamp**
Lights up when the telephone line is engaged.

6 **POWER lamp**
Lights up when the power is supplied to the unit.

7 **INTERCOM button**
Allows communication with the handset.

8 **Microphone**

9 **HOLD button and lamp**
Allows to hold the call. The lamp lights up while a call is put on hold.

10 **SPEAKERPHONE button and lamp**
Allows to receive calls at the base unit. The lamp lights up when a call is received at the base unit, or during conversation among caller, handset and base unit.

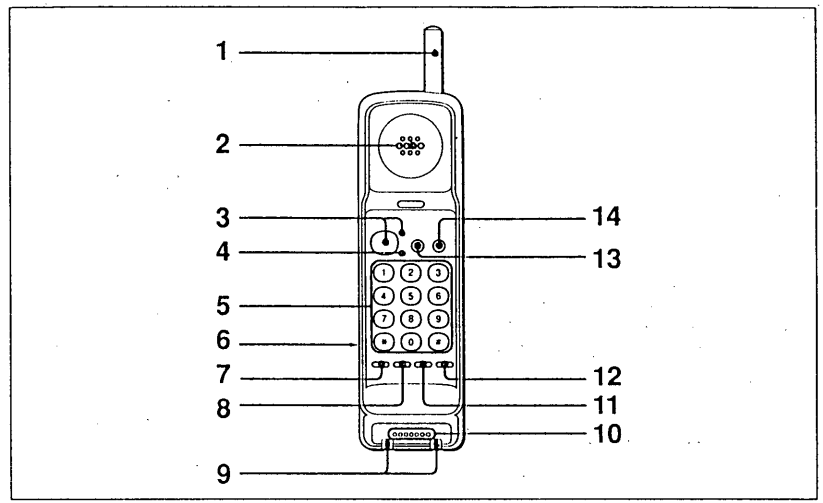
11 **CHARGE lamp**
Lights up when the battery is being charged.

12 **SPEAKER VOLUME control**

13 **RINGER (OFF/L/H) selector**
Selects the ringer level of the base unit.

14 **DIAL MODE switch**
Selects pulse or tone dialing.

15 **Antenna**



Handset

1 **Antenna**

2 **Speaker**

3 **TALK button and lamp**
Lets you make or receive a call. The lamp lights up while phone is used. Blinks while programming numbers, etc.

4 **BATT (battery) LOW lamp**
Lights up when battery becomes low.

5 **Dialing keys**

6 **RING ON/BATT SAVE mode switch**
Set to RING ON to turn the ringer on. Set to BATT SAVE to turn the ringer off and conserve battery power.

7 **CHANNEL button**
Allows to change channel for better reception.

8 **SPEED DIAL button**
Automatically dials speed dialing numbers.

9 **Charge terminals**

10 **Microphone**

11 **VOLUME/PROGRAM button**
Allows to program numbers. Selects the high or low volume when operated during a call.

12 **REDIAL/PAUSE button**
Redials the last number called/inserts a pause in the memory dialing sequence.

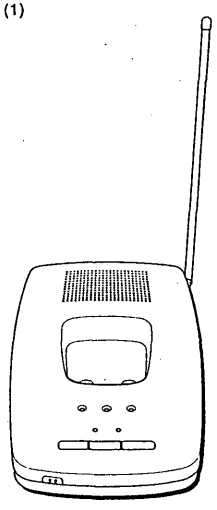
13 **FLASH button**
Accesses call waiting or gives you a new dial tone.

14 **INTERCOM button**
Allows communication with the base unit.

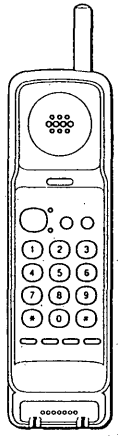
This section is extracted from instruction manual.

What You Get with Your Phone

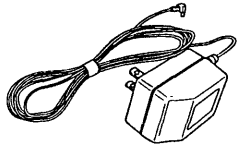
Base Unit (1)



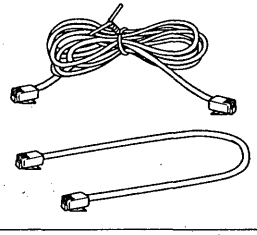
Handset



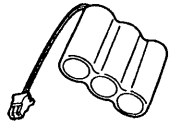
AC power adaptor (AC-T42)



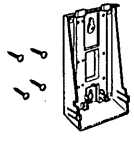
Telephone line cord



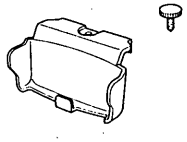
Rechargeable battery pack (BP-T18)



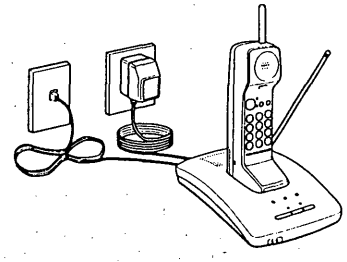
Wall bracket and screws



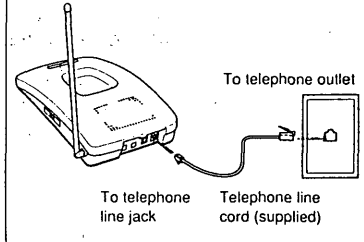
Hanger piece and screw



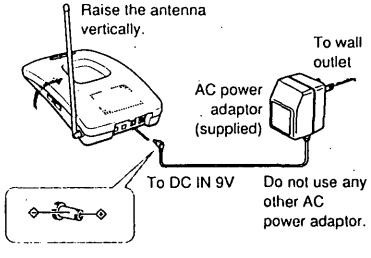
Setting up the Base Unit



Complete Set-up
Clean the battery charge terminals with a soft cloth about once a month, otherwise, the handset may not be fully charged.



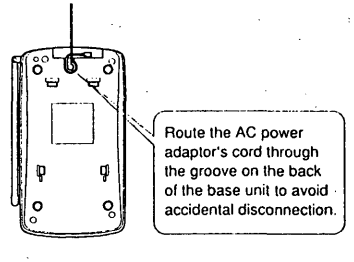
Telephone Line Connection
If your telephone jack is not a modular type, please contact your telephone company for assistance.



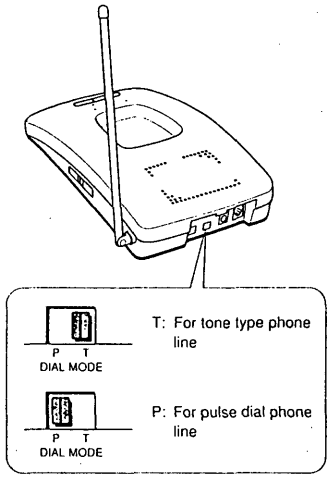
Power Connection

Notes

- **Connect the AC power adaptor to continuous power supply.**
  If the telephone is connected to a wall outlet where power is cut off every night, the battery pack will not be charged, and all programmed numbers will be lost from memory. The digital security code will also be erased.
- **If the digital security code is lost, place the handset on the base unit and charge the battery.**



Selecting the DIAL MODE (pulse or tone)



If you do not know which setting is correct for your telephone line, check as follows.

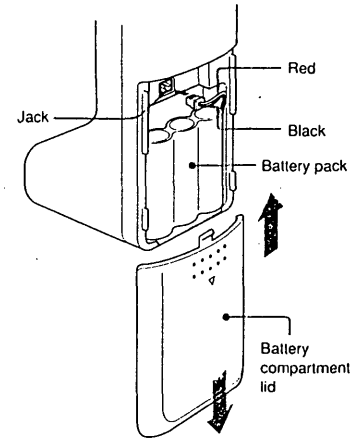
1 Set the DIAL MODE switch located at the rear of the base unit to TONE.

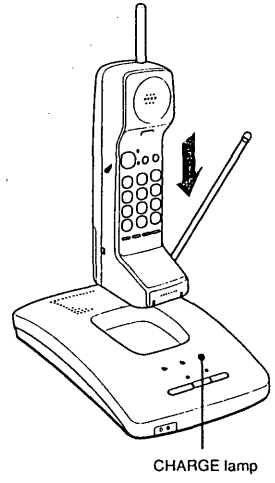
2 Make a trial call.

3 If the call is connected, leave the switch at TONE. Otherwise, set the switch to PULSE.

Charging the Battery Pack for the Handset

Handset





Before initial use, charge the supplied battery pack for more than 12 hours.

To charge the battery pack

1 Remove the battery compartment lid by pushing it downward.

2 Place the supplied battery pack in the battery compartment and connect the cord correctly to the jack as shown on the illustration.

3 Replace the battery compartment lid by pushing it upward.

4 Place the handset on the base unit and charge the battery pack for more than 12 hours.
The CHARGE lamp lights when the handset is fully seated onto the charge terminals of the base unit.

When to Charge the Battery

As long as the handset is placed back on the base unit after each call, the battery will be recharged continuously.

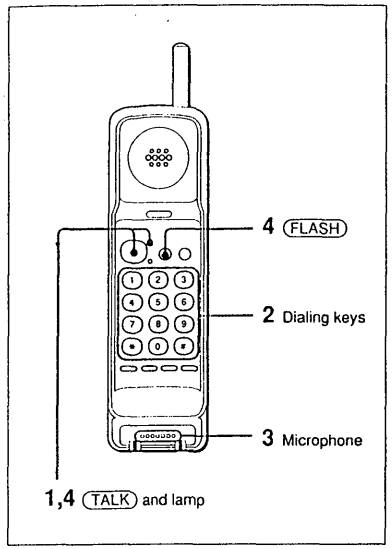
If the handset battery becomes weak
A beep tone will be heard every 3 seconds while you are on the phone.
The call will be disconnected in one minute.

Battery life
Replace the battery pack with a new one when the operating time of the completely charged battery pack has noticeably shortened.

Note

If the handset battery is completely discharged, the digital security code will be erased.
To reset the security code, place the handset on the base unit and charge the battery.

Making Calls



Pick up the handset from the base unit.

1 Press (TALK).
TALK lamp lights up. Confirm the dial tone.

2 Dial the number.

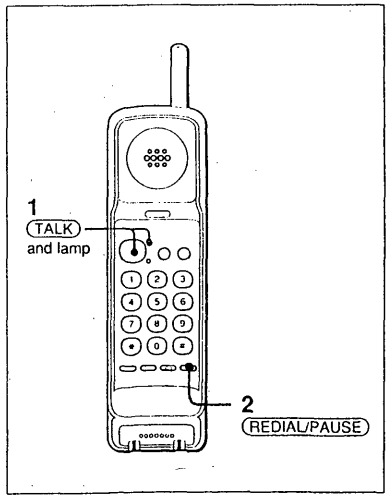
3 Talk when your party answers.

4 When you have finished, press (TALK) again or replace the handset on the base unit to disconnect. The TALK lamp goes off.
To make another call, press (FLASH) and dial again.

Notes

- If interference noise occurs when you try to make a call, the TALK lamp will blink and short alarm beeps will sound. In this case, bring the handset closer to the base unit.
- If the base unit is engaged, busy tone will sound.
- If you use the handset too far away from the base unit, the handset may be disconnected from the base unit, and when you press (TALK) to disconnect the line, the line will remain connected for a while. To avoid the above, bring the handset closer to the base unit when the line becomes noisy.

Redialing a Number



If the line is busy when you call someone, or you want to call someone you just called, there is no need to dial the number again manually. The REDIAL button automatically redials the most recently dialed number.

1 Press (TALK).
TALK lamp lights up.

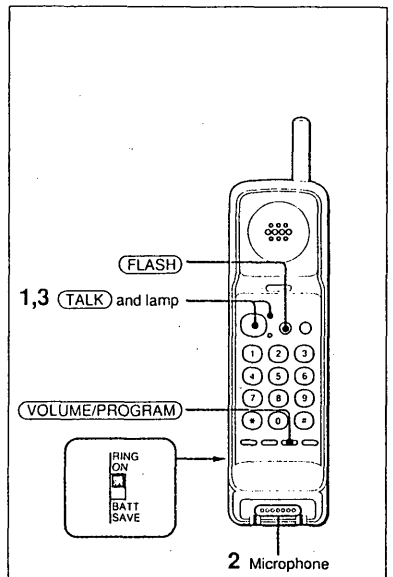
2 Press (REDIAL/PAUSE) instead of dialing the number.

Note

You can redial a phone number of up to 32 digits.

To keep the last dialed number confidential
In the RING ON mode, press (REDIAL/PAUSE) twice as soon as the call is over. This will erase the redial memory.

Receiving Calls



Receiving Calls on the Handset

The dialing keys (1 to 9, 0, ∗ and #) function to receive calls as well as the (TALK) button.

1 When you hear the ring, press (TALK).
You can also receive calls by pressing any dialing keys. TALK lamp lights up.

2 Speak into the microphone.

3 When you have finished, press (TALK) or replace the handset on the base unit to disconnect.

To adjust the volume level
Adjust the volume of incoming calls through the handset. High or low volume can be selected by pressing (VOLUME/PROGRAM) successively.

Note

If interference noise occurs when you try to receive a call, the TALK lamp will blink and short alarm beeps will sound. In this case, bring the handset closer to the base unit.

RINGER MODE selection

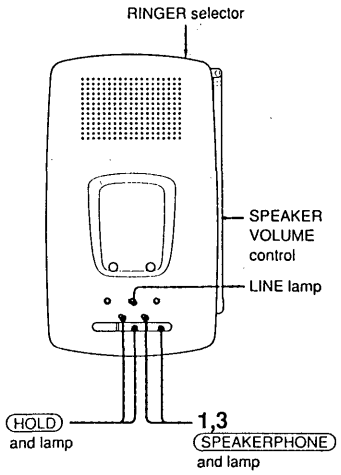
Select either RING ON mode or BATT SAVE mode using the RING ON/BATT SAVE switch.
RING ON: Normal standby mode.
The handset will ring on an incoming call.
BATT (battery) SAVE: The handset does not ring on an incoming call, which prolongs the battery duration. You can still make calls and receive calls.

Call Waiting and Flash

If you subscribe to "call waiting service", press (FLASH) to switch from one party to the other.

Note

If you do not have this service, the line will be disconnected when (FLASH) is pressed.



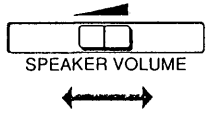
Receiving Calls on the Base Unit

1 When you hear the ring, press (SPEAKERPHONE).
The LINE and SPEAKERPHONE lamps light up.

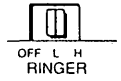
2 Speak into the base unit.

3 When you have finished, press (SPEAKERPHONE) again.
The LINE and SPEAKERPHONE lamps go off.

To adjust the volume of the base unit speaker
Use the SPEAKER VOLUME control.



To adjust the ringer sound level
Select H(high), L(low) or OFF with the RINGER selector.



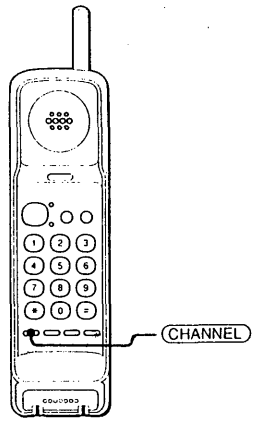
The handset rings even if the RINGER selector of the base unit set to OFF.

To Put a Call on Hold

1 Press (HOLD).
The HOLD lamp will light up and the call will be put on hold.

2 To resume conversation, press (HOLD) or (SPEAKERPHONE).

For the best speakerphone results
- You may not be able to hear the other person's voice in a noisy place. Use the speakerphone in a quiet room.
- Do not bring your hand or other object too close to the microphone. This will result in a shrill noise (howling).
- When speaker volume is loud, or the telephone is placed close to a wall, you may find that the volume drops suddenly. This is due to a circuit in the telephone designed to protect against howling. In such cases, lower the volume slightly.



Changing Channels for Better Reception

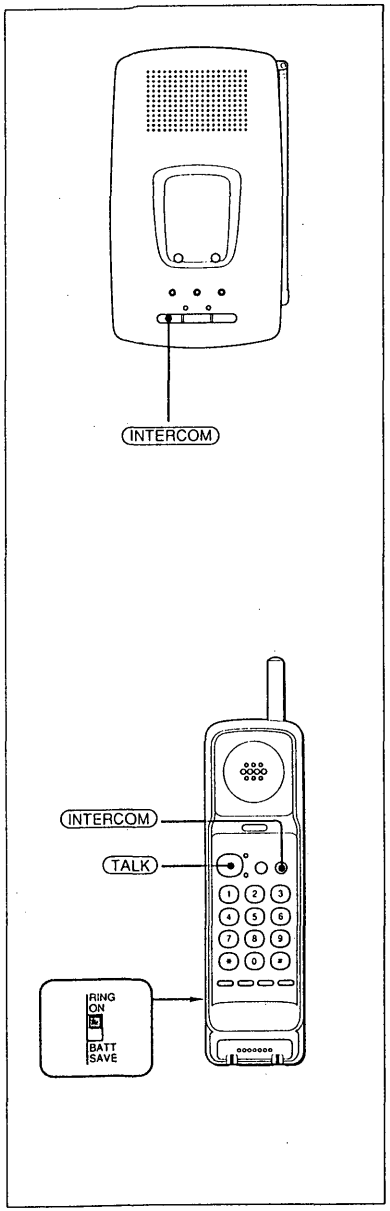
When you hear interference noise during conversation on the handset, try bringing the handset closer to the base unit.

If interference noise still persists, press (CHANNEL) to select an alternative channel. The TALK lamp blinks, and lights up when the channel has changed.

Note

If you try to change the channel when the handset is too far from the base unit, five short error beeps will sound and the channel cannot be changed. In this case, bring the handset closer to the base unit and try again.

Using the Phone as an Intercom



To use the phone as an intercome, make sure that RING ON/BATT SAVE switch on the handset is set to RING ON.

To Call the Handset from the Base Unit

1 Press (INTERCOM) on the base unit.

2 When the handset rings, press (TALK), and communication between the base unit and the handset starts.
You can also receive intercom by pressing any dialing keys (1 to 9, 0, ∗ and #).

3 To disconnect
On the handset: Press (TALK) again.
On the base unit: Press (SPEAKERPHONE).

To Call Base Unit from the Handset

1 Press (INTERCOM) on the handset.

2 When the base unit rings, press (SPEAKERPHONE), and the communication between the base unit and the handset starts.

3 To disconnect
On the base unit: Press (SPEAKERPHONE) again.
On the handset: Press (TALK).

If You Receive an Incoming Call while Using Intercom

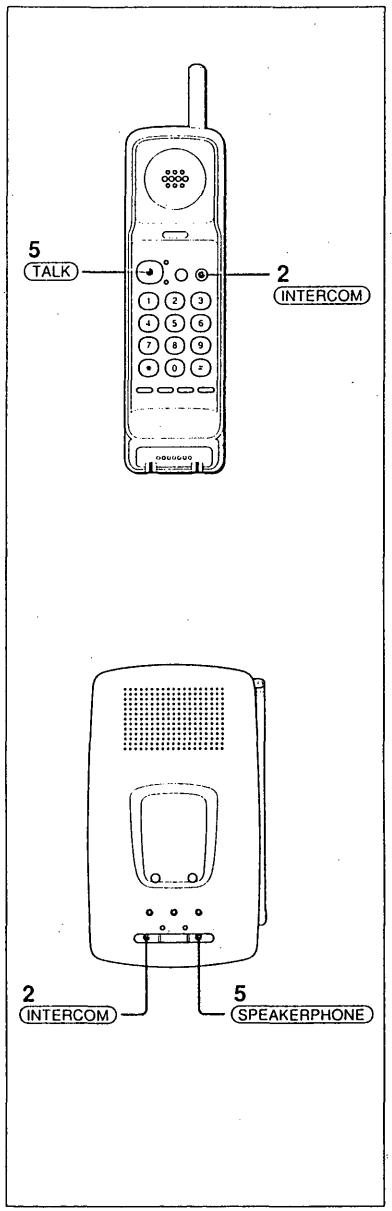
When a call comes in, you hear the incoming ring from handset and the base unit speaker.

To answer the call
Press (TALK) on the handset or (SPEAKERPHONE) on the base unit to disconnect intercom.
Then,
On the handset: Press (TALK) or any dialing key.
On the base unit: Press (SPEAKERPHONE).

Note

You cannot use the phone as an intercom when the telephone line is engaged.

Transferring Calls Between the Base Unit and the Handset



To Transfer from the Handset to the Base Unit

1 Ask your party to wait.

2 Press (INTERCOM) on the handset.
The call will be put on hold.

3 When the base unit rings, press (SPEAKERPHONE) on the base unit.

4 You can speak between the handset and the base unit.

5 Press (TALK) on the hand set.
The call will be transferred to the base unit.

If no one answers at the base unit
Press (INTERCOM) on the handset again. You can talk with your party again.

Note

When transferring from the handset to the base unit, the call will be disconnected if (TALK) is pressed before (SPEAKERPHONE) on the base unit is pressed.

To Transfer from the Base Unit to the Handset

1 Ask your party to wait.

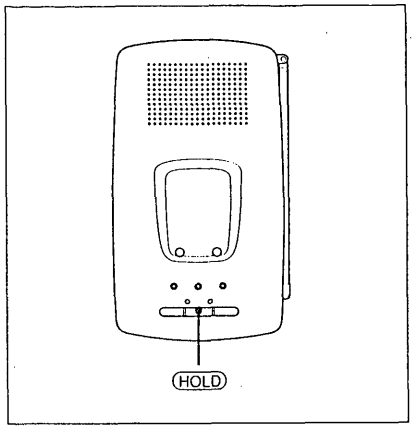
2 Press (INTERCOM) on the base unit.
The call will be put on hold and the HOLD lamp lights up.

3 When the handset rings, press (TALK).
You can also receive intercom by pressing any dialing keys (1 to 9, 0, ∗ and #). The TALK lamp will blink.

4 You can speak between the base unit and the handset.

5 Press (SPEAKERPHONE) on the base unit.
The call will be transferred to the handset.

If no one answers at the handset
Press (INTERCOM) on the base unit.
You can talk with your party again.



Making Conversation among the Caller, Handset, and Base Unit

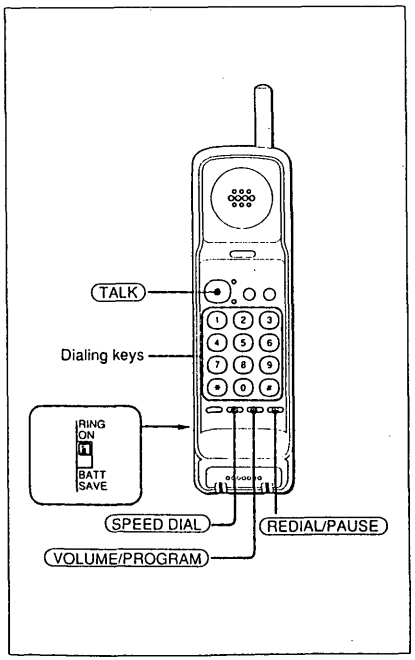
During intercom for transferring a call, press (HOLD) on the base unit. Communication among the caller, handset, and base unit starts.

To shift to conversation between the caller and the handset
Press the (SPEAKERPHONE) on the base unit.

To shift to conversation between the caller and the base unit
Press (TALK) on the handset.

To shift to intercom between the base unit and the handset
Press (HOLD) on the base unit.

Memory Dialing



You can program up to 20 numbers into memory for speed dialing (01 to 20).

Notes

- Make sure that RING ON/BATT SAVE switch on the handset is set to RING ON.
- You can program a phone number of up to 16 digits for each speed dialing number.
  (A (*/TONE) and (REDIAL/PAUSE) is each counted as one digit.)

Programming Numbers

1 Press (VOLUME/PROGRAM).
TALK lamp blinks.

2 Press (SPEED DIAL) and dialing keys (01 to 20) for speed dialing.
You will hear a confirmation beep.

3 Dial the phone number you wish to program.

4 Press (VOLUME/PROGRAM) again.
You will hear a long confirmation beep.

To change a programmed number
Program a new number using the procedure above. The old number will be erased automatically.

(continued)

To program REDIAL
You can save a number to be redialed into memory. This is convenient when you want to dial the number after dialing a different number. Directly after you disconnect the number to be redialed, perform the steps of "Programming Numbers". Press (REDIAL/PAUSE) in step 3.

Notes

- If you enter a number that exceeds 16 digits, an alarm will sound. Go back to step 1.
- Do not let more than 20 seconds elapse between any two steps of the programming procedure.
- If you enter a wrong number, go back to step 1.
- You cannot program any number when receiving an incoming call, using the handset or using the phone as an intercom.

To Make a Call with Speed Dialing

1 Press (TALK).

2 Press (SPEED DIAL).

3 Press the desired dialing keys for speed dialing (01 to 20).

Note

If you press a dialing key without a phone number programmed, five short error beeps will sound.

To program numbers for use with a PBX (Private Branch Exchange)

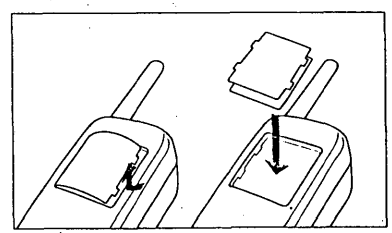
Example:
If 9 is used to access the outside line

Follow the usual programming procedure as described. Press (REDIAL/PAUSE) between the "9" and the number. An automatic 4-second pause is programmed.

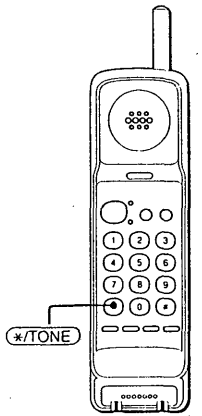
Example:
To program 123-4567 for speed dialing

Press:
(VOLUME/PROGRAM) → (SPEED DIAL) + (01 to 20) for speed dialing (You will hear a confirmation beep.) → ⑨→ (REDIAL/PAUSE) → ①②③④⑤⑥⑦ → (VOLUME/PAUSE) (You will hear a long confirmation beep.)
(A (REDIAL/PAUSE) will be counted as one digit.)

To keep a directory of what you programmed
Lift off the clear panel, take out the directory on the rear of the handset and write down the name of the person or place whose number you have programmed.
When you replace the panel, make sure the projections of the panel enter fully into the slots of the handset.



Using Touch-tone Services *(for pulse dialing systems only)*



Some services require you to use touch-tone. This is not a problem if your phone already uses tone dialing. If your phone uses pulse dialing, however, you need to follow the steps below to use these services.

1 Dial the service number.

2 When connected to the service, press (*/TONE).

3 Press the dialing keys as required.

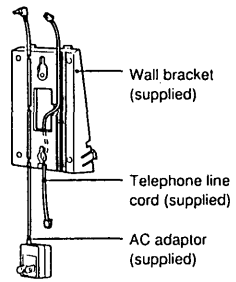
For details on making calls with the phones, see "Making calls" on page **6**.

Note

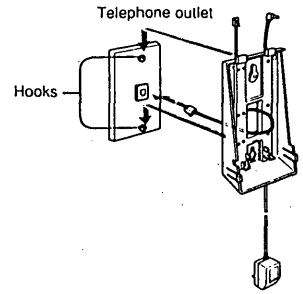
You only need to press (*/TONE) once to turn dialing to tone; this will remain effective until the call is disconnected.

Mounting Your Phone on the Wall

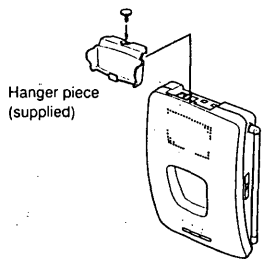
1 Attach the AC adaptor cord and the telephone line cord to the wall bracket.



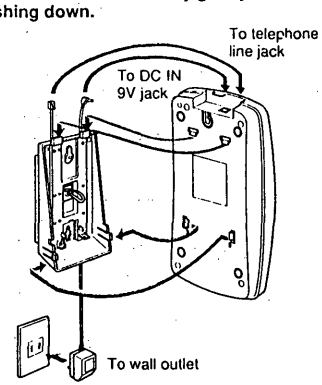
2 Hook the bracket to the telephone outlet, and plug the telephone line cord into the modular jack.



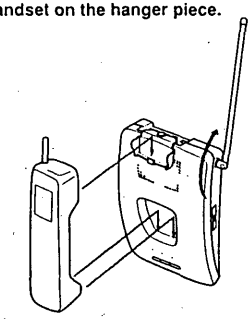
3 Attach the supplied hanger piece to the base unit using the supplied screw.



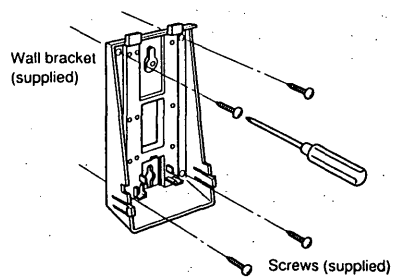
4 Align the slots on the base unit with the inserts on the bracket. Then attach the base unit to the bracket by gently pushing down.



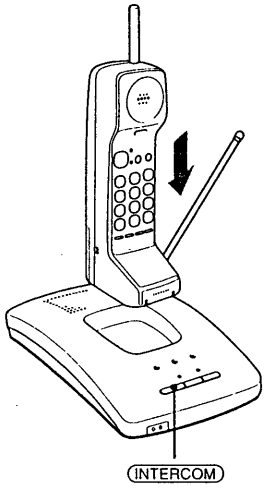
5 Raise the antenna upward and hang the handset on the hanger piece.



In step 2, if you cannot hook the bracket, attach it directly to the wall using the supplied screws.



About the Security Code System



Sony cordless telephones are equipped with a security code system that automatically matches the handset to the base unit through unique security codes. Each time you receive or initiate a call, the security code is exchanged between the handset and the base unit so that only the matching handset and base unit are connected.
This prevents the problem of "cross-signaling", where for example the handset of your unit unintentionally connects with the base unit of your neighbor's cordless phone and vice-versa.

(This is not to be confused with the interference you may encounter **during a call** from other equipment operating nearby, including cordless telephones. The channel selection feature helps you minimize such interference.)

With the automatic security code system in this unit, a unique code is set when you initially place the handset on the base to charge, and that code is maintained as long as the AC power to the base unit is maintained. In case of a prolonged AC power interruption, the base unit will reset with a new code upon power restoration, and if the handset has been away from the base during that time, it will need to be placed back on the base for a few seconds for the new code to be passed on to the handset.

Aside from this situation, the security code system works automatically, and normally you will not need to worry about it at all. Most other cordless telephones also incorporate similar security code systems.

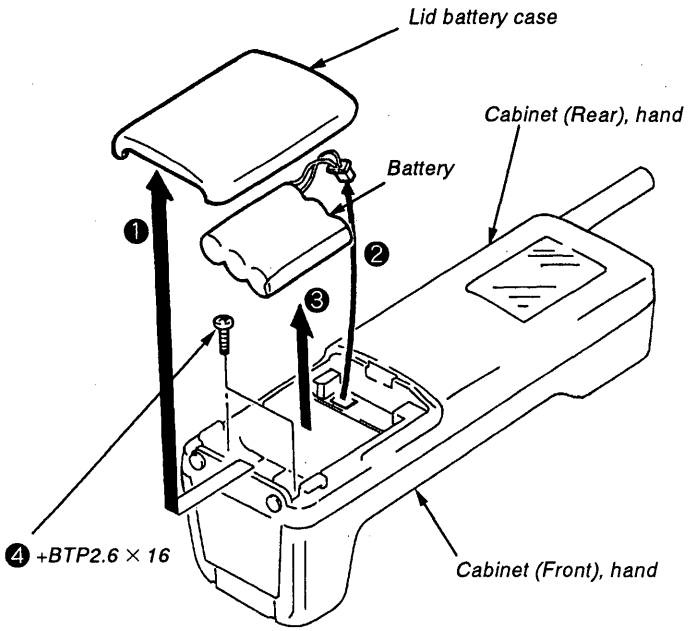
Only in the rare event that you need to manually change the code, the following are the instructions to do so.

Place the handset on the base unit, and press (INTERCOM) of the base unit.
A new security code is selected automatically and set.

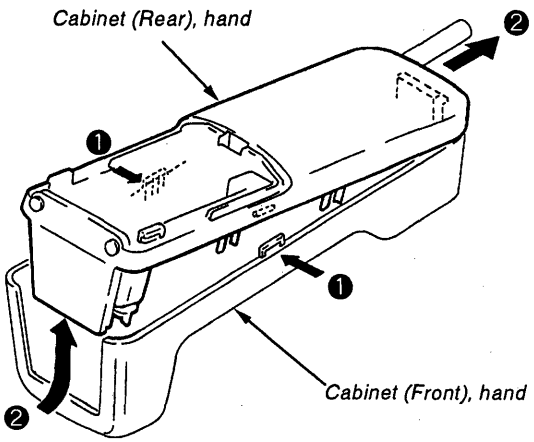
SECTION 2
DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

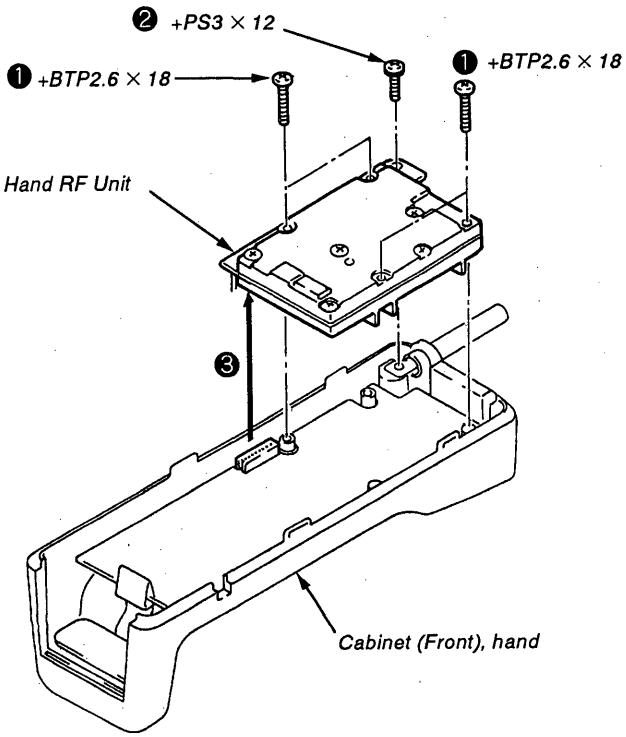
[BATTERY]



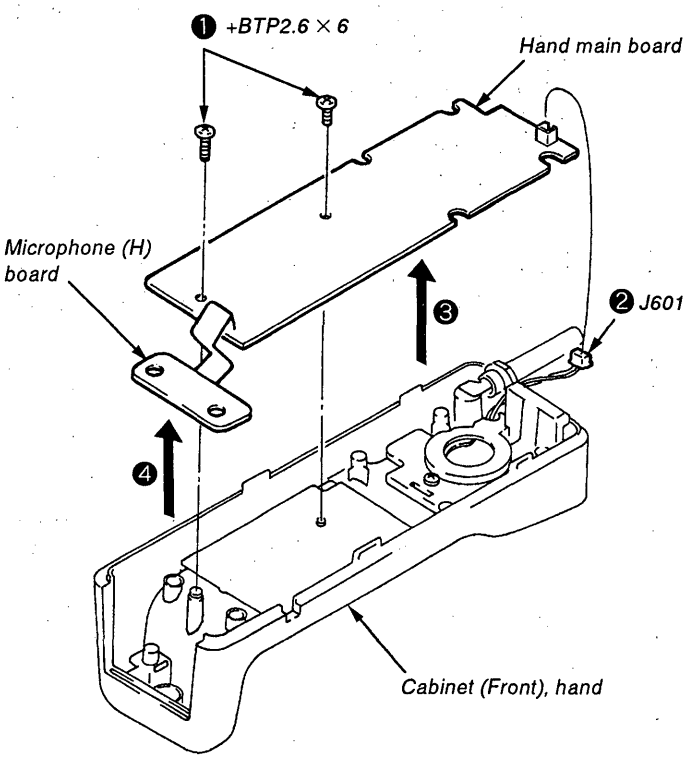
[CABINET (REAR), HAND]



[HAND RF UNIT]



[HAND MAIN BOARD, MICROPHONE (H) BOARD]



SECTION 3
TEST MODE

BASE UNIT

⟨Setting the Test Mode⟩

While pressing the [INTERCOM] and [SPEAKER PHONE] keys, reset POWER ON (connect the AC adapter plug).

When the test mode is set, a beep will sound and the [POWER] and [LINE] LEDs will light. Test Mode 1 will thereby be set.

⟨Canceling the Test Mode⟩

Cancel the test mode by executing any of the following:

- Turn OFF the POWER (disconnect and reconnect the AC adapter plug).
- Set the handset to the CHARGE mode on the base unit.
- BELL IN

⟨Changing the Test Mode⟩

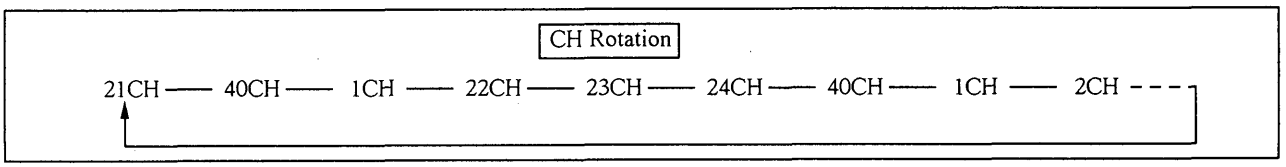
Change the test mode by pressing the [INTERCOM] key once.

Example : Press the [INTERCOM] key once to set test mode No.1

Press the [INTERCOM] key three times to set test mode No.3

⟨Changing the Channel⟩

To change the channel, press the [HOLD] key. The channel will change in the following sequence.



* When the STEP is changed, the CHANNEL will be reset to the initial channel.

⟨Test Mode Execution⟩

Press the [INTERCOM] key to execute the tests below.

		INITIAL CH	TX PWR	TEL EN	INT EN	SP C/S	RX MUTE	RL CNT	BEL VOL	SP EN	MIC MUTE	
1	TX FREQ	21	L	L	L	H	H	L	–	L	H	
2	TX MODE	21	L	H	L	H	L	H	–	L	H	
3	TX DATE	21	L	L	L	H	L	H	–	L	H	*• 1
4	RX sens	21	L	H	L	H	H	H	–	L	H	
5	SQ sens	21	L	H	L	H	*A	H	–	L	H	
6	SINGLE TONE	21	H	L	L	H	L	H	–	L	H	*• 2
7	DUAL TONE	21	H	L	L	H	L	H	–	L	H	*• 3
8	INT TX	21	L	L	H	L	L	L	–	L	L	*• 4
9	INT RX	21	L	L	H	L	H	L	–	L	H	*• 5
10	DATA IN CHECK	21	L	H	L	L	H	L	H	L	H	*• 6
11	T/P SW	21	H	L	L	H	L	L	–	L	H	*• 7

*A SQ Available : *H*
SQ Not Availabe : L

* 1. Test Mode 3 : Transmission data "0000 · · · ·" will be output continuously.

* 2. Test Mode 6 : Each time the [SPEAKER PHONE] key is pressed, the setting will change in the following sequence :

ROW 1 → 2 → 3 → 4 → COL 1 → 2 → 3 → 4 → ROW 1 → · · · ·

ROW 1 : 696.95Hz	COL 1 : 1209.31Hz
ROW 2 : 770.13Hz	COL 2 : 1335.65Hz
ROW 3 : 852.27Hz	COL 3 : 1476.71Hz
ROW 4 : 940.99Hz	

* 3. Test Mode 7 : Each time the [SPEAKER PHONE] key is pressed,he sound will change in the following sequence :

1 → 2 → 3 → 4 → 5 → 6 → 7 → 8 → 9 → 0 → * → # → 1 → · · · ·

* 4. Test Mode 8 : The [SPEAKER PHONE] LED will light.

* 5. Test Mode 9 : The [SPEAKER PHONE] LED will blink. The speaker sound will be loud

* 6. Test Mode 10 : When the data received is "0000 · · · ·" the sound (1 kHz) will be loud.

* 7. Test Mode 11 : When the [DIAL MODE] SW is set to TONE, the [HOLD] LED will light and the [HOLD] LED will blink with PULS.

HANDSET

⟨Setting the Test Mode⟩

While pressing the [*] and [#] keys, reset POWER ON (BATT SAVE → RING ON).

When the test mode is set, a beep will sound and the [TALK] LED will light. Test Mode 1 will thereby be set.

⟨Canceling the Test Mode⟩

Cancel the test mode by executing any of following :

- Turn OFF the POWER (disconnect and reconnect BATT CONNECTOR J602).
- Press the [TALK] key.
- Press the [INTERCOM] key.
- Set the handset to the [CHARGE] mode on the base unit.

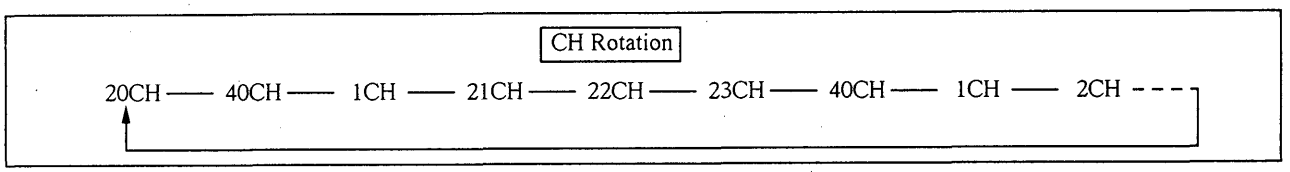
* 1. The charge mode is disabled in test mode No. 9.
  2. When the test mode is canceled, the [TALK] LED will turn off.

⟨Changing the Test Mode⟩

Changing the test mode No. by pressing the respective key from 1 to 10.

⟨Changing the Channel⟩

To change the channel, press the [CHANNEL] key. The channel will change in the following sequence.



* When the STEP is changed, the CHANNEL will be reset to the initial channel.

⟨Test Mode Execution⟩

Press the respective key for the desired test mode No. to execute any of the following tests :

		KEY No.	INITIAL CH	TX PWR	RX PWR SC	MIC MUTE	RX MUTE	CONV	
1	VCO/TX FREQ. ADJ	1	20	L	H	H	L	H	
2	TX MODE. CHECK	2	20	L	H	L	L	L	
3	TX DATE	3	20	L	H	H	L	H	*• 1
4	RX sens	4	20	L	H	H	H	L	*• 2
5	SQ sens	5	20	L	H	H	L	L	
6	RECEIVE DATA CHECK	6	20	L	H	H	L	H	*• 3
7	BELL	7	20	H	L	H	L	H	*• 4
8	BATTERY LOW CHECK	8	20	H	L	H	L	H	*• 5
9	CHARGE CHECK	9	20	H	L	H	L	H	*• 6
10	DUPLEX	0	20	L	H	L	H	L	*• 7

*1. Test Mode 3 : Transmisson data "0000····" will be output continuously.

*2. Test Mode 4 : In the RX Mode, press the [VOLUME/PROGRAM] key to adjust the SPEAKER VOL.
(The initial SPEAKER VOL is "H".)

*3. Test Mode 6 : When the data received is "0000····" the sound (1kHz) will be loud.

*4. Test Mode 7 : The initial 2-tone bell (2kHz and 1kHz) will be loud.
(The volume can be adjusted with the [VOLUME/PROGRAM] key.)

*5. Test Mode 8 : When POWER BATT LOW is "L", the sound (1 kHz) will be loud and the [BATT LOW] LED will light.

*6. Test Mode 9 : When POWER CHARGE IN is "L", the sound (1 kHz) will be loud.

*7. Test Mode 10 : The SPEAKER VOL can be adjusted with the [VOLUME/PROGRAM] key.
(The initial SPEAKER VOL is "H".)

SECTION 4
EXPLANATION OF IC TERMINALS

IC1 MB88644-HP (BASE UNIT)

Pin No.	Pin Name	I/O	Description	
1	CHRG IN	I	Charge input terminal.	Charge ON : L, Charge OFF : H
2	RING OUT	O	Sound output (using TOV).	Normally : H, Sound out : H&L
3	RING VOL	O	Sound output volume control.	Normally/MIN : L, MAX : Himp
4	RL CONT	O	Hook relay control output.	ON : H, OFF : L
5	MIC MUTE	O	Mic mute control output.	Mute : H, Unmute : L
6	$\overline{\text{SPCS}}$	O	Control output terminal for speaker phone IC chip selection.	Enable : L, De enable : H
7	NC	–	Used for GND connectuon for this unit.	
8	NC	–	Used for GND connectuon for this unit.	
9	RING ON/OFF	I	Ringer ON/OFF SW input.	ON : H, OFF : L
10	$\overline{\text{SP KEY}}$	I	Speaker key input terminal.	Press the key : L, Release the key : H
11	$\overline{\text{HOLD KEY}}$	I	Hold key input terminal.	Press the key : L, Release the key : H
12	$\overline{\text{INT KEY}}$	I	Intercom key input terminal	Press the key : L, Release the key : H
13	RING H/L	I	Ringer tone H/L SW select input.	High : H, Low : L
14	TONE/PULS	I	Tone/Puls SW select input.	Tone : H, Puls : L
15	$\overline{\text{BATT OFF}}$	I	Signal input ternimal for availability/non-availability of battery.	Not available : L, Available : L
16	BELL IN	I	Bell input terminal.	Normally : H, Available, H&L
17	DTMF	O	DTMF Signal output terminal.	Normally : L
18	Vcc	–	Power supply terminal (+B)	
19	NC	–	Not used.	
20	$\overline{\text{SP LED}}$	O	Speaker LED control output.	Lighting : L, Nolight : H
21	$\overline{\text{HOLD LED}}$	O	Hold LED control output.	Lighting : L, Nolight : H
22	$\overline{\text{LINE LED}}$	O	Line LED control output.	Lighting : L, Nolight : H
23	DATA IN	I	Code data input terminal.	
24	CHG LED	O	Charge LED control output.	Lighting : L, Nolight : H
25	NC	–	Used for GND connection for this unit.	
26	SQ IN	I	SQ input terminal.	SQ available : H, SQ available : L
27	C/T ENB	O	C/T Enable control output.	Enable : H, De enable : L
28	SP ENB	O	Speakerphone Enable control output.	Enable : H, De enable : L
29	INT ENB	O	Intrecom Enable cntrol output.	Enable : H, De enable : L
30	$\overline{\text{RX MUTE}}$	O	RX Mute control output.	Mute : L, Unmute : H
31	TEST	–	Chip test terminal. Always input "L"	
32	NC	–	Used for GND connection for this unit.	
33	NC	–	Used for GND connection for this unit.	
34	DATA OUT	O	Data output. (normally : Himp)	
35	DATA ENB	O	Data enable control output. (H : Himp / normally : L)	

Pin No.	Pin Name	I/O	Description
36	$\overline{TX}$	O	Transmisstion system power control. Power ON : L, Power OFF : H
37	PLL CLK	O	MB1519 (PLL) Clock control output (normally : L)
38	PLL DAT	O	MB1519 (PLL) Data control output (normally : L)
39	PLL ENB	O	MB1519 (PLL) Latch enable control output (normally : L)
40	X IN	I	Internal oscillator. (3.579545MHz)
41	X OUT	O	External oscillator. (3.579545MHz)
42	Vss	–	Power supply terminal. (GND)
43	NC	–	Not used.
44	$\overline{RESET}$	I	Reset terminal.
45	NC	–	Not used.
46	NC	–	Not used.
47	QUICK	O	Quick charge control. Charge ON : L. Charge OFF : H
48	TRICKL	O	Trickle charge control. Charge ON : L. Charge OFF : H

IC601 MB88618-HP (HANDSET)

Pin No.	Pin Name	I/O	Description
1	RING VOL	O	Sound output volume control. Normally/MIN : L, MAX : Himp
2	RING OUT	O	Sound output (using TOV). Normally : H, Sound out : H&L
3	$\overline{\text{KEY RW3}}$	O	Key matrix scan output. Waiting : L, Scanning : H&L
4	$\overline{\text{KEY RW4}}$	O	Key matrix scan output. Waiting : L, Scanning : H&L
5	NC	–	Used for GND connection for this unit.
6	NC	–	Used for GND connection for this unit.
7	NC	–	Used for GND connection for this unit.
8	$\overline{\text{BATT LOW}}$	I	Battery low input. Battery low : L, Normally : H
9	$\overline{\text{KEY CL0}}$	I	Key matrix input (stand-by cancellation input). Key Push ON : L
10	$\overline{\text{KEY CL1}}$	I	Key matrix input. Key Push ON : L
11	$\overline{\text{KEY CL2}}$	I	Key matrix input. Key Push ON : L
12	$\overline{\text{KEY CL3}}$	I	Key matrix input. Key Push ON : L
13	$\overline{\text{BATT OFF}}$	I	Signal input terminal for availability/non-availabilityof battery. Not available : L, Available : H
14	BATT SAV	I	Battery save SW input. Power Save : H, Normally : L
15	$\overline{\text{CHG IN}}$	I	Signal input terminal for availability/non-availability of CHARGE. Chage Availaboe : L, Chage no available : H
16	$\overline{\text{WAKE UP}}$	I	Activation input for intermittent reception (Stand-by cancellation input). Cancel : L
17	NC	–	Not used.
18	Vcc	–	Power supply terminal.
19	NC	–	Not used.
20	NC	O	Not used.
21	$\overline{\text{BATT LED}}$	O	Battery low LED control. Blinking : L, No light : H
22	$\overline{\text{TALK LED}}$	O	Talk LED control. Lighting : L, No light : H
23	CODE IN	I	Code data input terminal.
24	NC	–	Used for GND connection for this unit.
25	NC	–	Used for GND connection for this unit.
26	SQ IN	I	SQ input Terminal. SQ Available : H, Not SQ available : L
27	$\overline{\text{RX MUTE}}$	O	RX mute control output. Mute : L,Unmute : H
28	WAKE UP 0	O	Intcrmittent reception (CPU activation circuit control). Always at "H" when activatingthe CPU.
29	SP VOLUM	O	Speaker volume control output. Volume MAX : H, Volume MIN : L
30	MIC MUTE	O	Mic mute control output. Mute : H, Unmute : L
31	TEST	–	Chip test terminal. Always input "L".
32	RX	O	Power supply control output for RX circuit. Power ON : H, Power OFF : L
33	$\overline{\text{CONV}}$	O	Call condition power supply control output. (MIC/Ear SP power supply control). When calling "L", When not calling "H"
34	CODOUT	O	Code data output. (Normally : Himp)
35	CODENB	O	Code data enable control output. (H output : Himp / normally : L)

Pin No.	Pin Name	I/O	Description
36	$\overline{TX}$	O	Power supply control output for transmission circuit. Power ON : L, Power OFF : H
37	PLLCLK	O	MB1519 (PLL) Clock control output (normally : L)
38	PLLDAT	O	MB1519 (PLL) Data control output (normally : L)
39	PLLENB	O	MB1519 (PLL) Latch enable control output (normally : L)
40	X0	I	Internal oscillator. (3.579545MHz)
41	X1	O	External oscillator. (3.579545MHz)
42	Vss	–	Power supply terminal. (GND)
43	NC	–	Not used.
44	$\overline{RESET}$	I	Reset input terminal.
45	NC	O	Not used.
46	$\overline{KEYRW1}$	O	Key matrix scan output. Waiting : L, Scanning : H&L
47	$\overline{KEYRW2}$	O	Key matrix scan output. Waiting : L, Scanning : H&L
48	$\overline{KEYRW3}$	O	Key matrix scan output. Waiting : L, Scanning : H&L

SECTION 5
ELECTRICAL ADJUSTMENTS

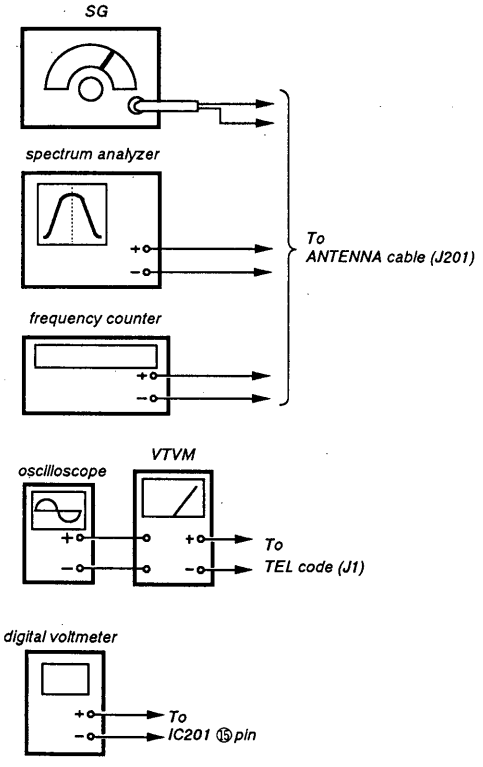
- Aside from RX SENSITIVITY adjustment, use only as reference material. (RF BOARD is for unit replacement/repair)

⟨BASE UNIT SECTION⟩

- While pressing the INTERCOM key and the SPEAKERPHONE key at the same time. turn the power ON and go to Test Mode 1 (refer to page 13 for the test modes). After inserting into the different modes press the HOLD key to change the channel.

Setting :

- •RF Extension cable (9P) : J5 ↔ J202
- •ANTENNA cable : To J201
- •TEL code : To J1



- •RF Extension cable (3-702-630-01)
- •ANTENNA cable (3-702-631-01)
- •150 Ω cable (3-702-632-01)

1. TX Frequency Adjustment

Procedure :

Connect J201 to the frequency counter by means of the ANT cable and adjust CT201 to the desired (TX : 927.000MHz, RX : 903.050MHz) frequency.

2. TX POWER Adjustment

Procedure :

Connect the ANT cable to the spectrum analyzer and measure the transmission output. Adjust VR202 so that the transmission output is −7dBm.

3. IF DET Adjustment

Procedure :

Connect the ANT cable to SG and press the INTERCOM key three times to got to Test Mode 4. Adjust the SG to the desired frequency and set at 1mV output, non-modulation. Place the tester on the ⑮ pin of IC201 and adjust L206 until the voltage is 1.5V.

4. RX SENSITIVITY Adjustment

Procedure :

Connect the TEL cord between the BASE main unit and the VTVM. Adjust the SG output to 1kHz, ±8kHz deviation. Adjust VR1 so that VTVM output is −9dBm.

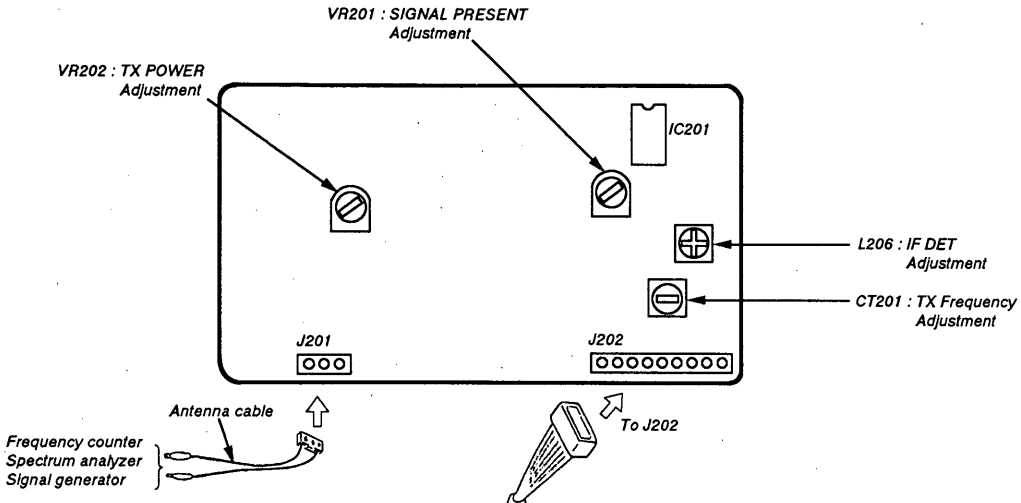
5. SIGNAL PRESENT Adjustment

Procedure :

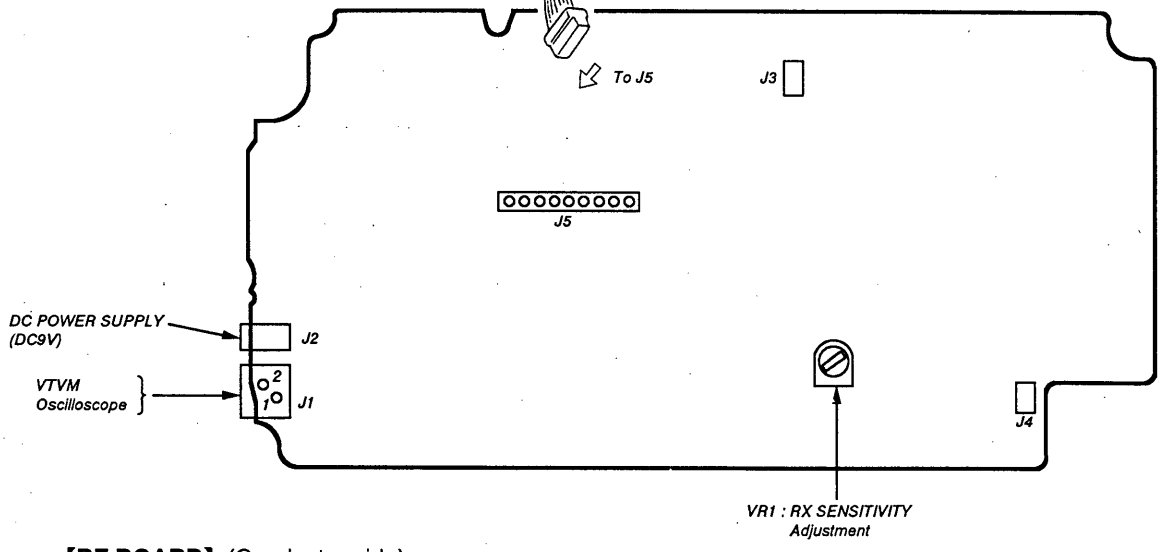
Press the INTERCOM key once and go to Test Mode 5. Adjust SG to −120dBm output, non-modulation. Adjust VR201 so that there is receipt of a signal from a state where there is no VTVM output. Stop the SG output at this time and confirm that there is no signal. (It is easier to adjust by connecting the VTVM output to an oscilloscope and observing the waveforms.)

Adjustment Location :

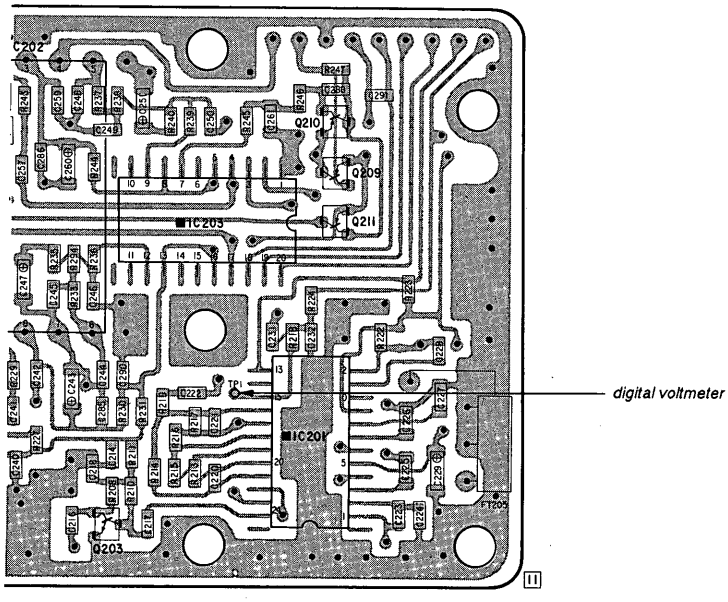
【RF BOARD】 (Component side)



【BASE MAIN BOARD】 (Component side)



【RF BOARD】 (Conductor side)

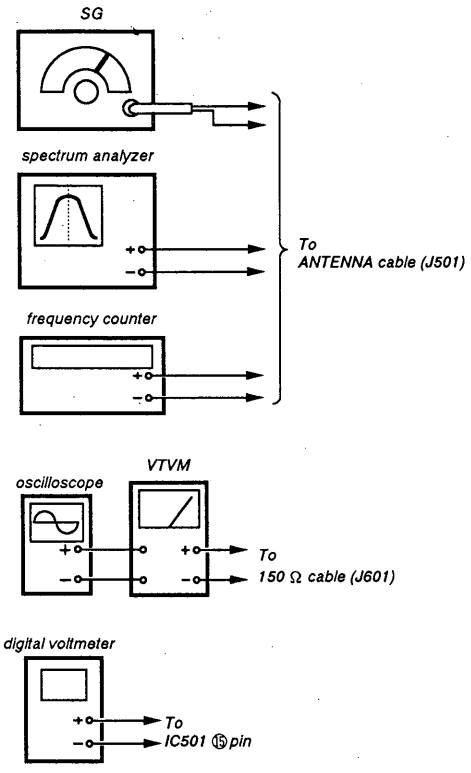


⟨HANDSET SECTION⟩

- While pressing the [#] key and the [*] simultaneously turn the power ON and go to Test Mode 1 (referring to page 15 for the test modes). After inserting into the different modes press the [CHANNEL] key to change the channel.

Setting :

- •RF Extension cable (9P) : J603 ↔ J502
- •ANTENNA cable : To J501
- •150 Ω cable : To J601



- •RF Extension cable (3-702-630-01)
- •ANTENNA cable (3-702-631-01)
- •150 Ω cable (3-702-632-01)

1. TX Frequency Adjustment

Procedure :

Connect J501 to the frequency counter by means of the ANT cable and adjust CT501 to the desired (TX : 903.000MHz, RX : 926.950MHz) frequency.

2. TX POWER Adjustment

Procedure :

Connect the ANT cable to the spectrum analyzer and measure the transmission output. Adjust VR502 so that the transmission output is −5dBm.

3. IF DET Adjustment

Procedure :

Connect the ANT cable to SG and press the [4] key to go to Test Mode 4. Adjust the SG to the desired frequency and set to 1mV output, non-modulation. Place the tester on the ⑮ pin of IC501 and adjust L506 until the voltage is 1.5V.

4. RX SENSITIVITY Adjustment

Procedure :

Connect J601 to the VTVM via the 150 Ohm cable. Adjust the SG output to 1kHz, ±8kHz deviation. Adjust VR601 so that the VTVM output is 125mV.

5. SIGNAL PRESENT Adjustment

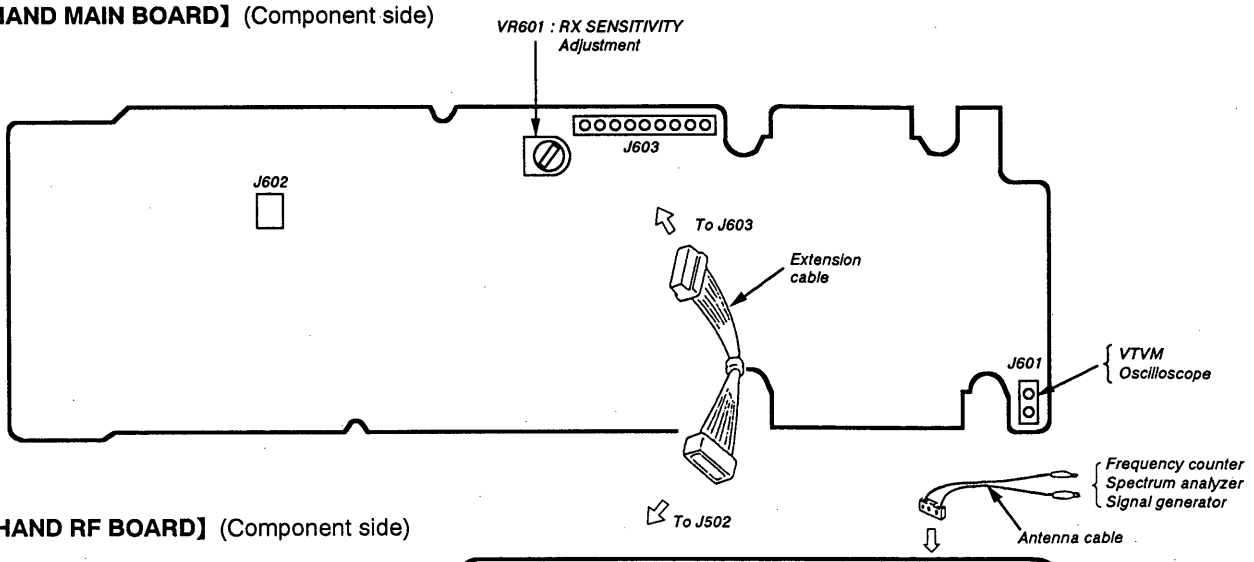
Procedure :

Press the [5] key to go to Test Mode 5 and adjust SG to non-modulation −121dBm output. Adjust VR501 to receive a signal from a state in which there is no VTVM output.

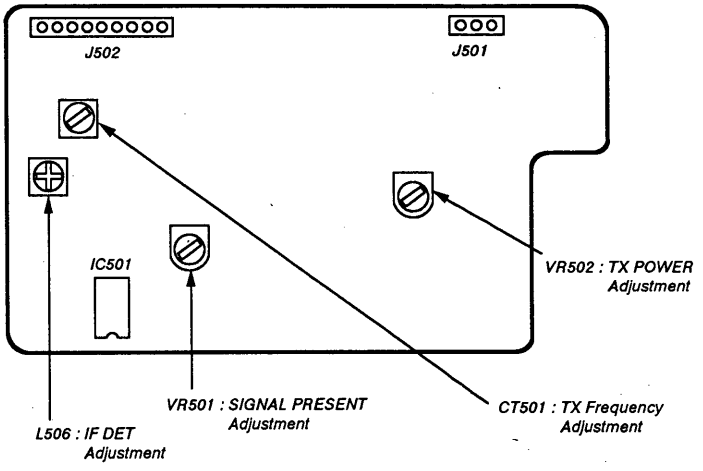
Stop the SG output at this time and confirm that it goes to a no-signal state. (It is easier to adjust by connecting the VTVM output to an oscilloscope and observing the waveforms) .

Adjustment Location :

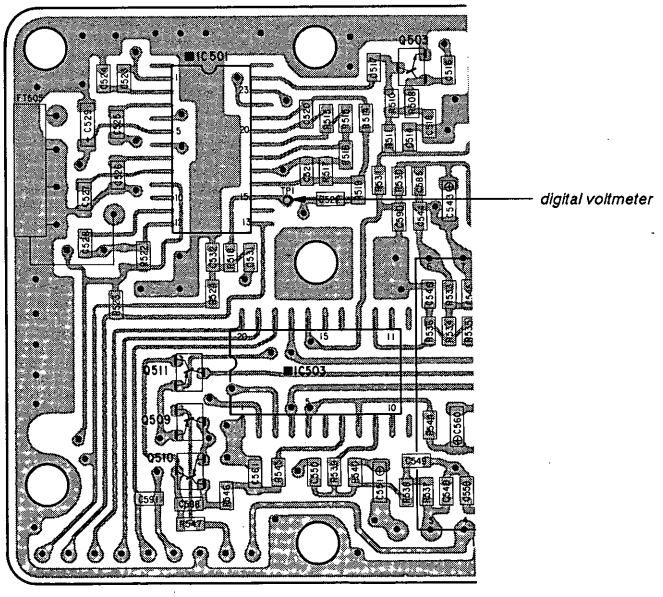
[HAND MAIN BOARD] (Component side)



[HAND RF BOARD] (Component side)

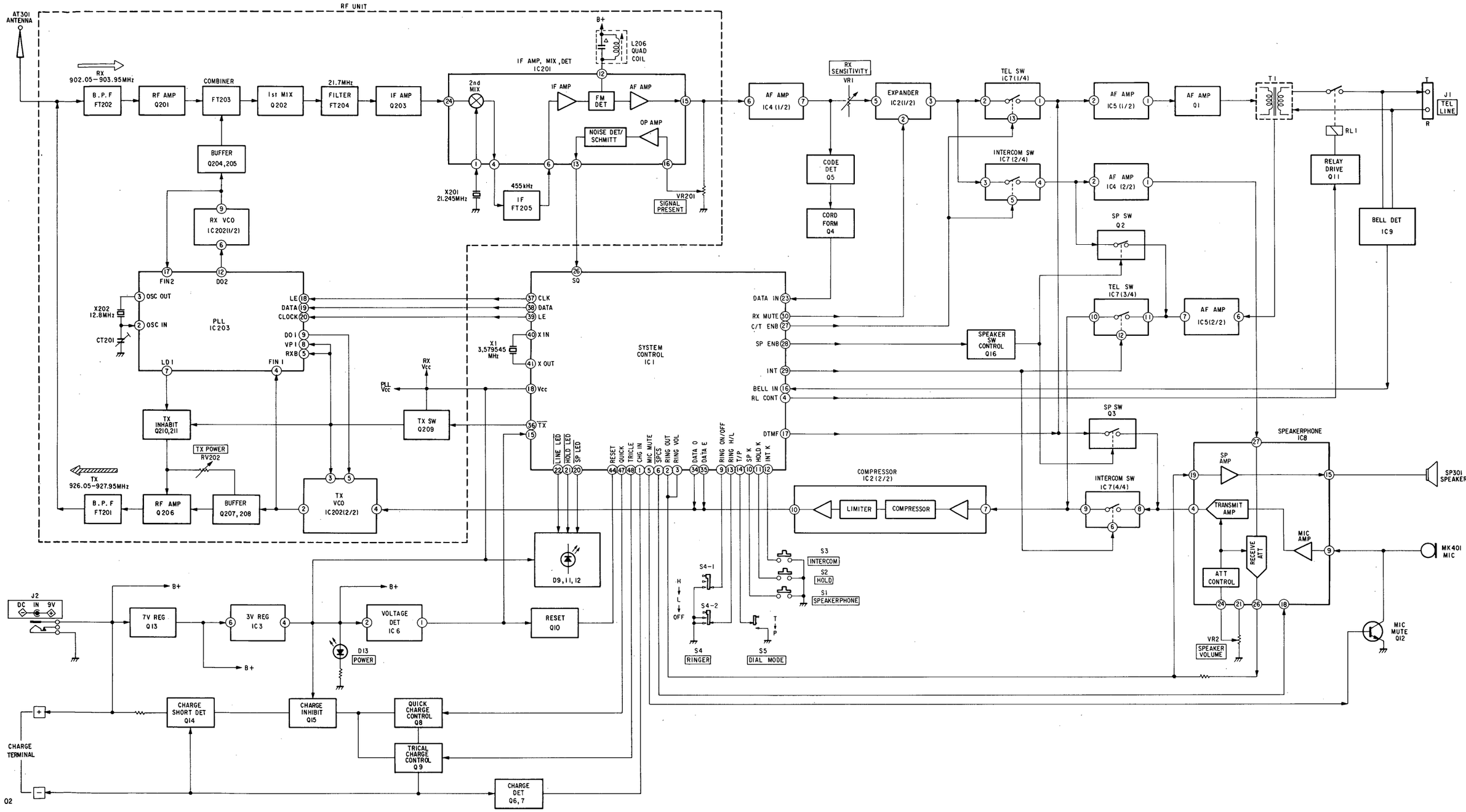


[HAND RF BOARD] (Conductor side)

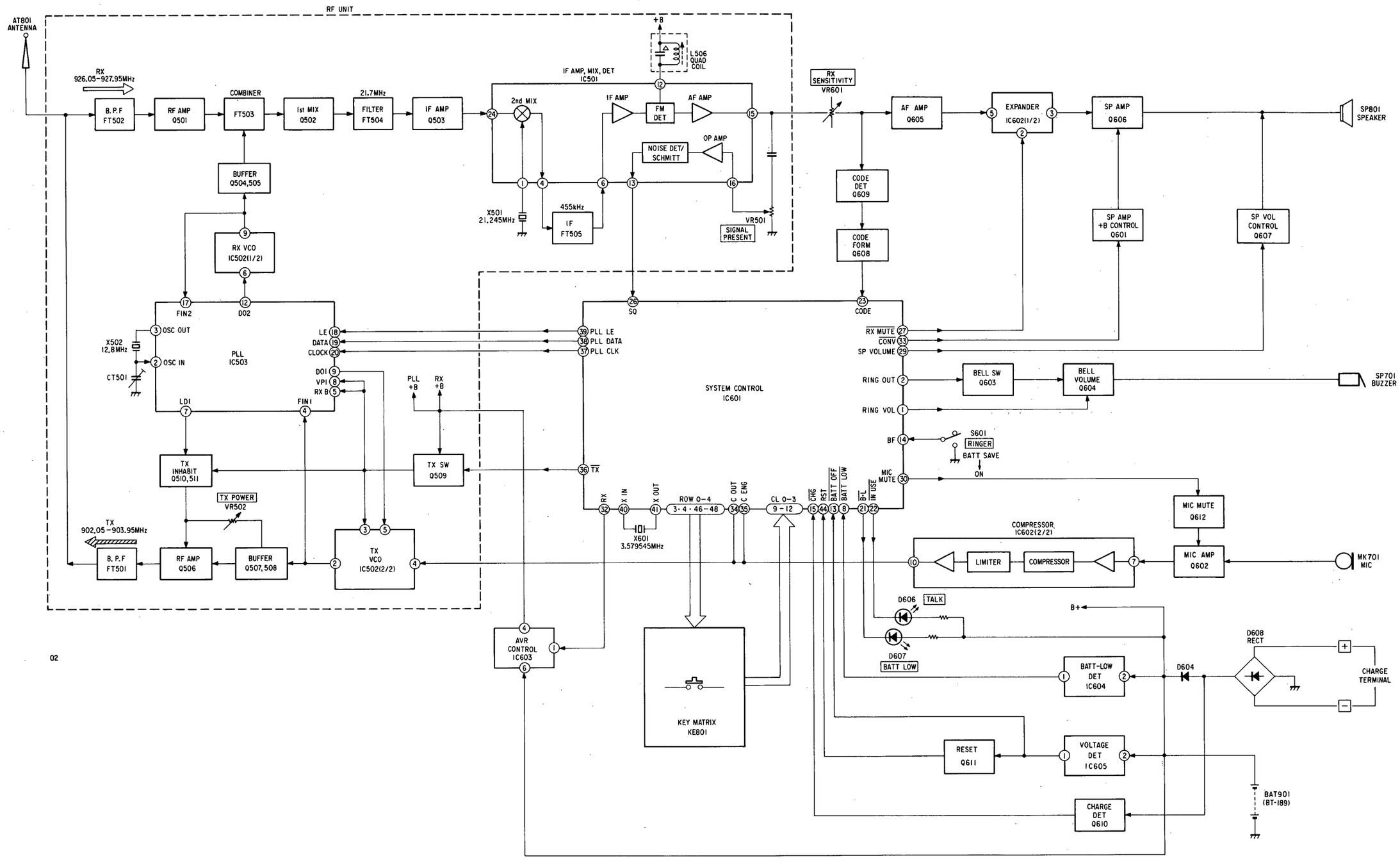


SECTION 6
DIAGRAMS

6-1.BLOCK DIAGRAM (BASE UNIT SECTION)

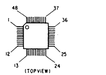


6-2.BLOCK DIAGRAM (HANDSET SECTION)



● SEMICONDUCTOR LEAD LAYOUTS

MB88644-HP



HZK6C
HZ7C3

RH5VA25CA-T1
RH5VA35CA

LLP-204GS
LLP-204RS

2SA1162-G
2SC2712-YG

PC817

2SC3419-0

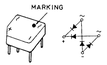
PG1102W
VR1102W

DSM-10C

RD36ESB2
1SS119

HSK120

S1ZB20-4062



HSM88WA

1SS226

● SEMICONDUCTOR LOCATION

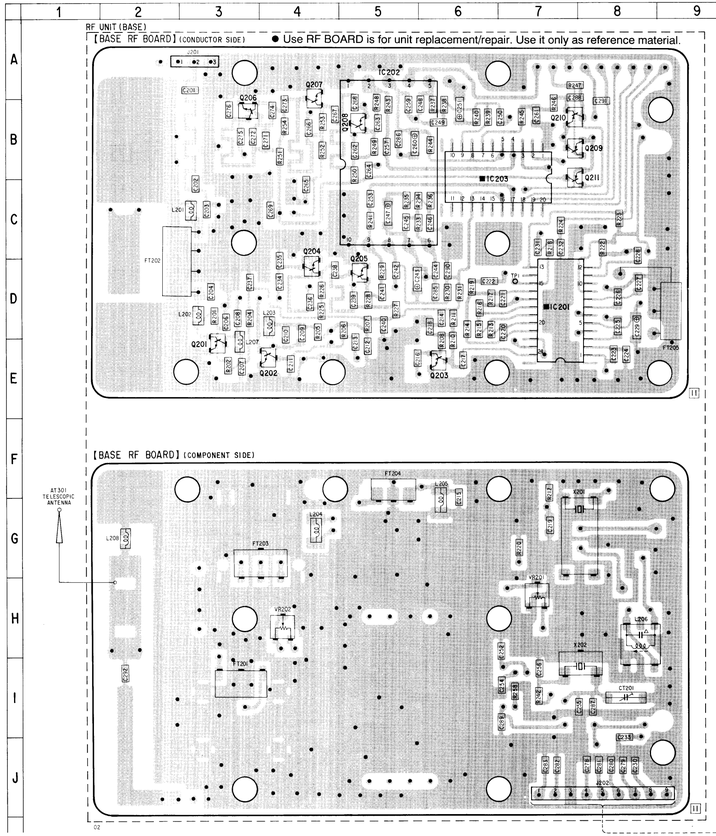
Ref. No.	Location	Ref. No.	Location
D1	F - 21	Q1	G - 18
D2	F - 21	Q2	G - 16
D3	C - 12	Q3	F - 17
D4	B - 17	Q4	B - 19
D5	D - 17	Q5	B - 18
D6	F - 12	Q6	F - 13
D7	E - 21	Q7	F - 12
D8	G - 20	Q8	D - 17
D9	C - 11	Q9	D - 17
D11	E - 11	Q10	D - 21
D12	D - 12	Q11	F - 20
D13	E - 12	Q12	B - 13
D14	G - 16	Q13	D - 22
		Q14	C - 16
		Q15	C - 17
IC1	B - 20		
IC2	F - 15	Q16	F - 18
IC3	D - 18		
IC4	G - 15		
IC5	G - 17		
IC6	C - 21		
IC7	E - 17		
IC8	B - 13		
IC9	F - 21		

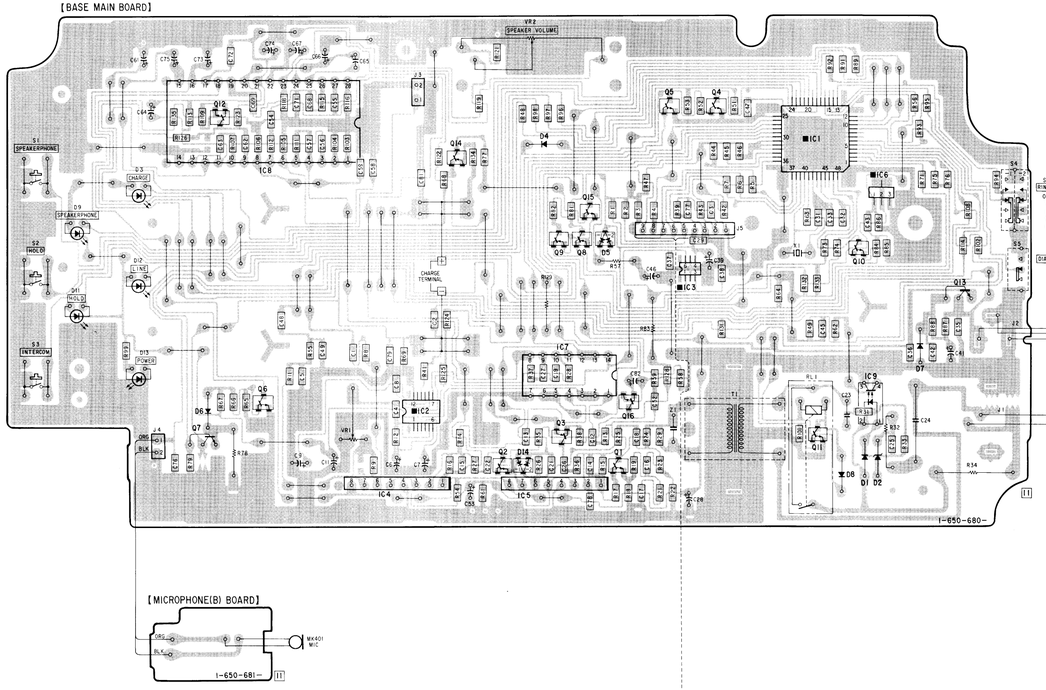
Note:

- ○— : parts extracted from the component side.
- ■ : parts mounted on the conductor side.
- ● : Through hole.
- □ : Chip components extracted from the rear side.
- ▨ : Pattern from the side which enables seeing. (The other layers' patterns are not indicated)

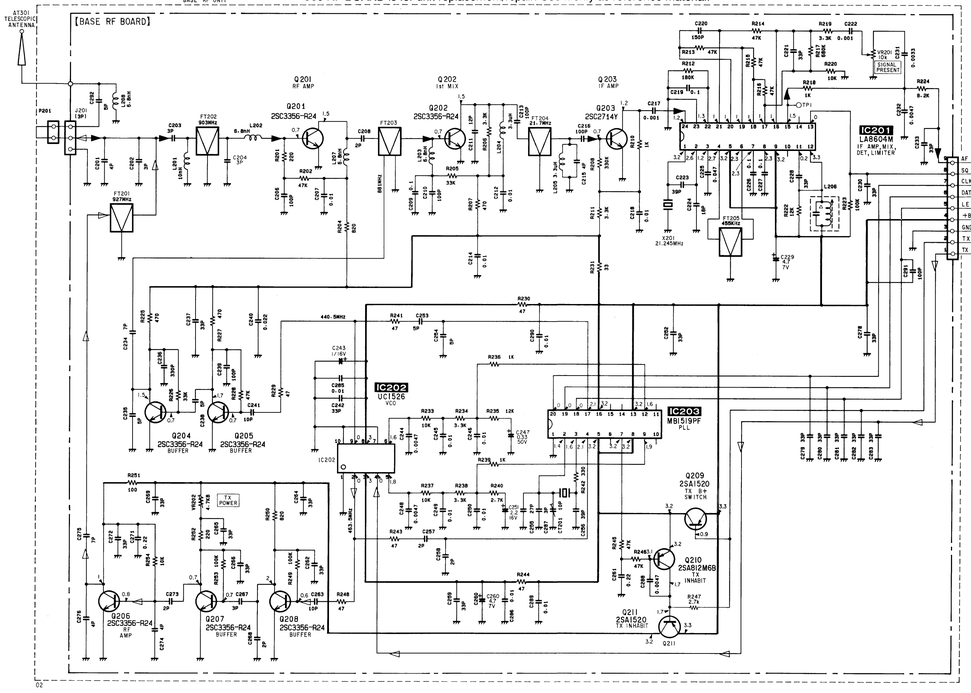
Caution :
Pattern face side : (Conductor Side) Parts on the pattern face side seen from the pattern face are indicated.
Parts face side : (Component side) Parts on the parts face side seen from the parts face are indicated.

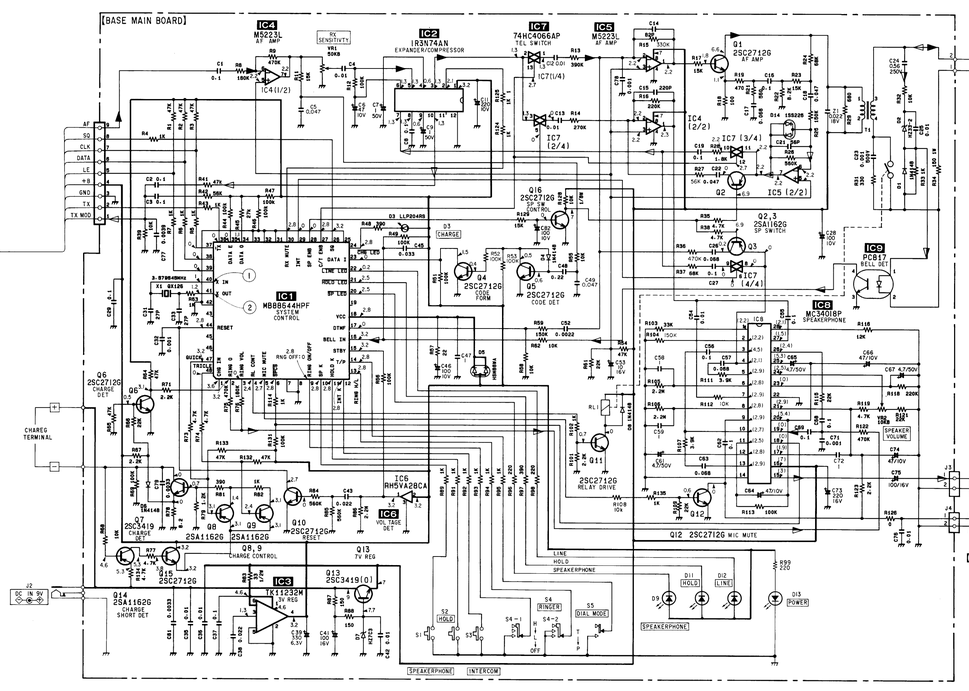
6-3.PRINTED WIRING BOARDS (BASE UNIT SECTION)



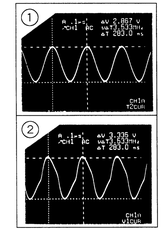


● Use RF BOARD is for unit replacement/repair. Use it only as reference material.





● WAVEFORMS



Note :

- All capacitors are in μ F unless otherwise noted. pF: μ μ F
  50WV or less are not indicated except for electrolytics and tantaliums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- % : indicates tolerance.
- △ : internal component.
- ▬▬ : B+ Line
- ▭ : adjustment for repair.
- Power voltage is dc 9V and fed with regulated dc power supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : TALK
  ( ) : SPEAKERPHONE
- Voltages are taken with a VOM (Input impedance 10M Ω). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ▷ : RX
  ▶ : TX
  ▶ : bell

6-5.PRINTED WIRING BOARDS (HANDSET SECTION)

● Refer to page 29 for Semiconductor Lead Layouts.

● SEMICONDUCTOR LOCATION

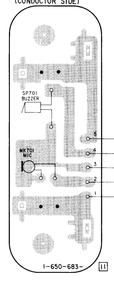
Ref. No.	Location
D601	B - 5
D602	C - 7
D603	B - 9
D604	B - 5
D605	B - 5
D606	H - 12
D607	H - 11
D608	B - 5
IC601	C - 9
IC602	B - 14
IC603	C - 12
IC604	B - 8
IC605	D - 6
Q601	D - 12
Q602	D - 13
Q603	B - 6
Q604	B - 6
Q605	C - 16
Q606	C - 16
Q607	D - 16
Q608	B - 9
Q609	B - 10
Q610	C - 5
Q611	D - 7
Q612	D - 12

Note:

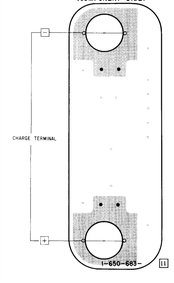
- ○— : parts extracted from the component side.
- ■ : parts mounted on the conductor side.
- ● : Through hole.
- □ : Chip components extracted from the rear side.
- ▨ : Pattern from the side which enables seeing. (The other layers' patterns are not indicated)

Caution :
Pattern face side : Parts on the pattern face side seen from (Conductor Side) the pattern face are indicated.
Parts face side : Parts on the parts face side seen from the (Component side) parts face are indicated.

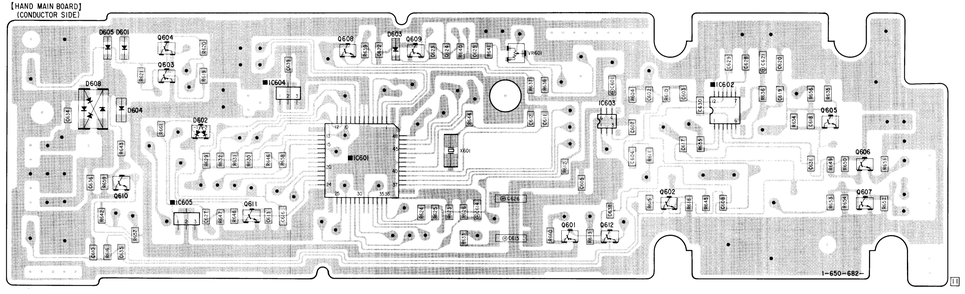
【MICROPHONE(H) BOARD】 (CONDUCTOR SIDE)



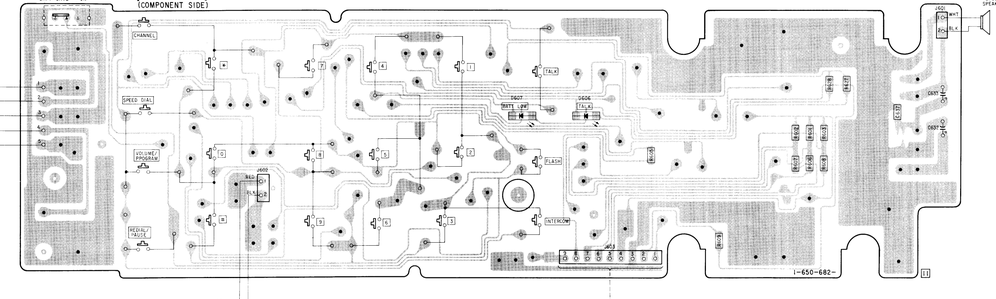
【MICROPHONE(H) BOARD】 (COMPONENT SIDE)



【HAND MAIN BOARD】 (CONDUCTOR SIDE)



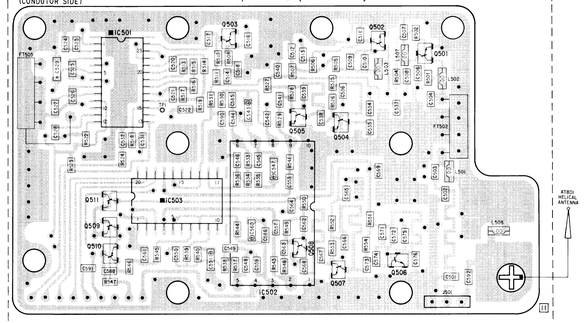
【HAND MAIN BOARD】 (COMPONENT SIDE)



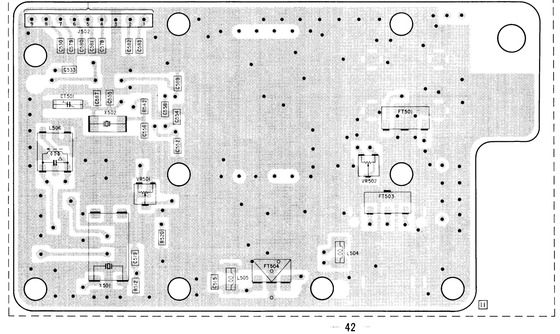
RF UNIT(HAND)

【HAND RF BOARD】 (CONDUCTOR SIDE)

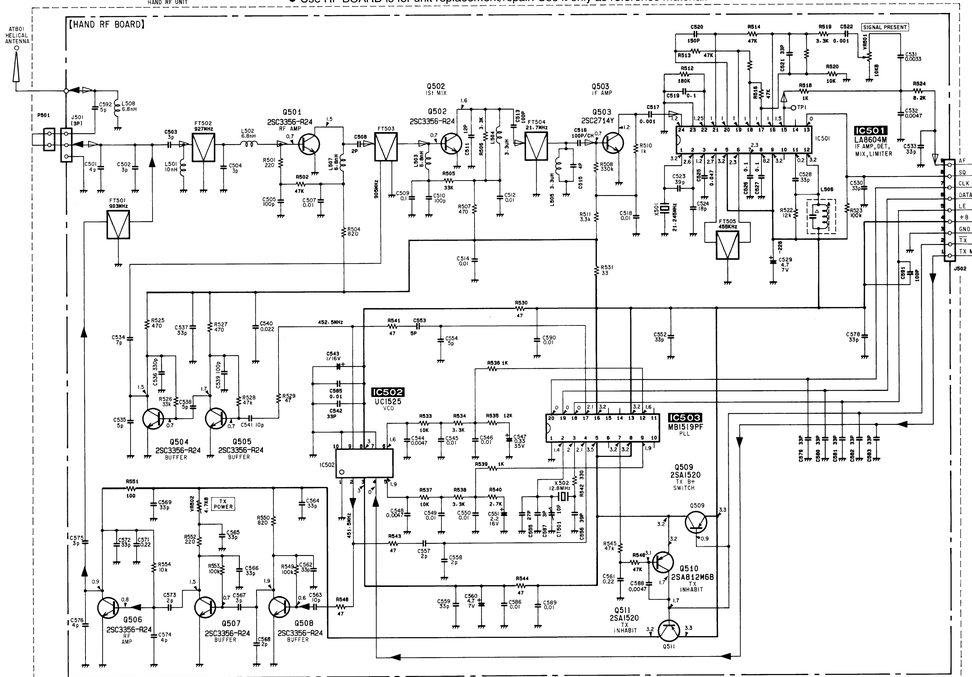
● Use RF BOARD is for unit replacement/repair. Use it only as reference material.

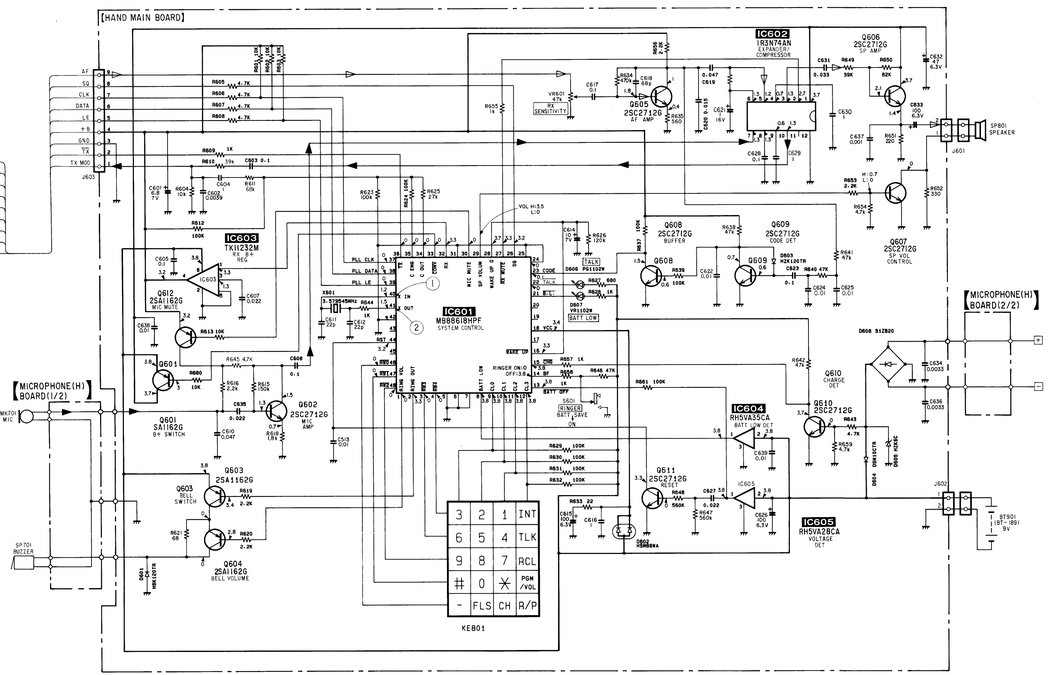


【HAND RF BOARD】 (COMPONENT SIDE)

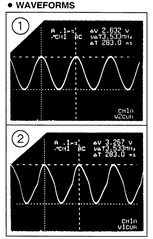


● Use RF BOARD is for unit replacement/repair. Use it only as reference material.





● WAVEFORMS

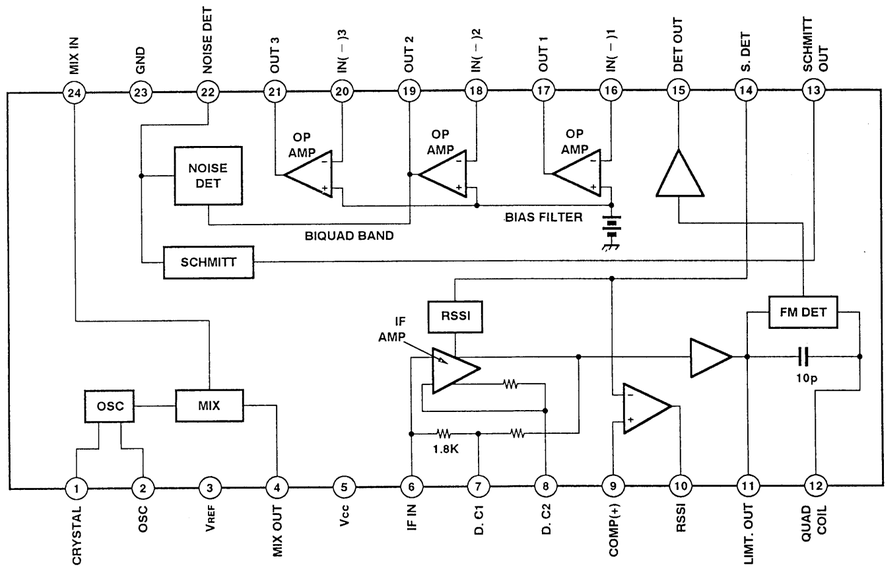


Note :

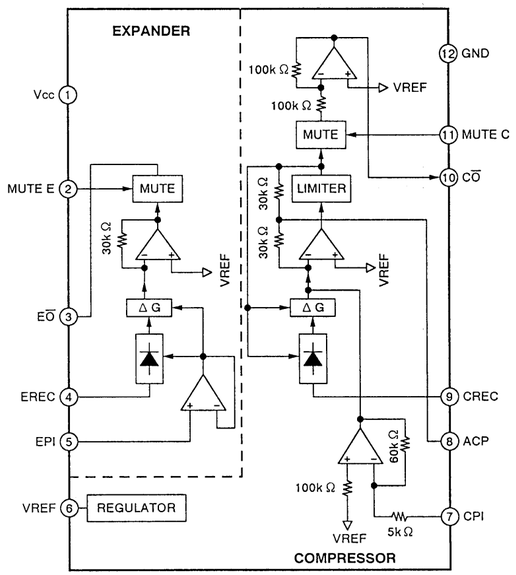
- All capacitors are in μ F unless otherwise noted. pF: μ μ F
  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- % : indicates tolerance.
- △ : internal component.
- ▬▬ : B+ Line
- ▭ : adjustment for repair.
- Power voltage is dc 9V and fed with regulated dc power supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : TALK
- Voltages are taken with a VOM (Input impedance 10M Ω). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ▷ : RX
  ▶ : TX
  ▶ : bell

6-7.IC BLOCK DIAGRAMS

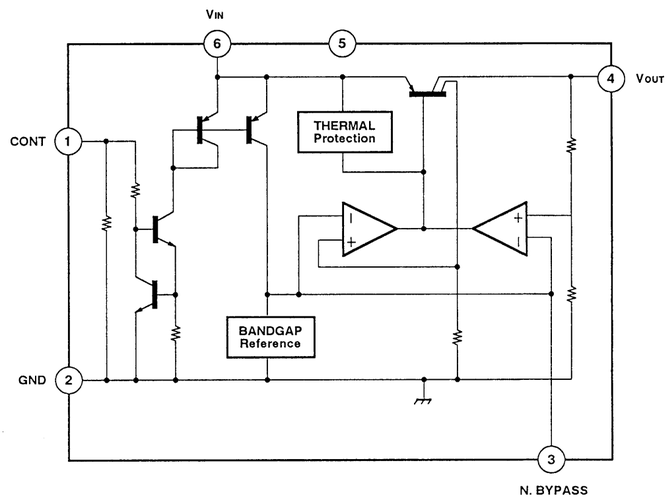
IC201, 501 LA8604M



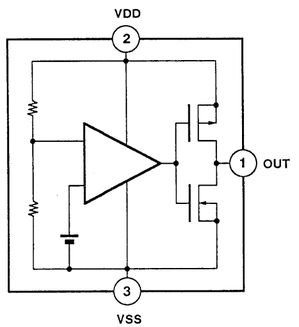
IC 2, 602 IR3N74AN



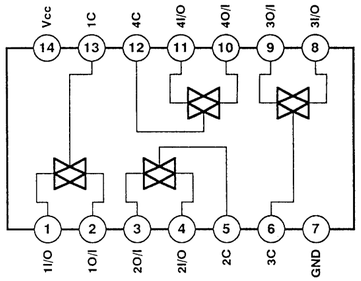
IC603 TK11232M



IC604 RH5VA35CA-T1



IC7 TC74HC4066AP



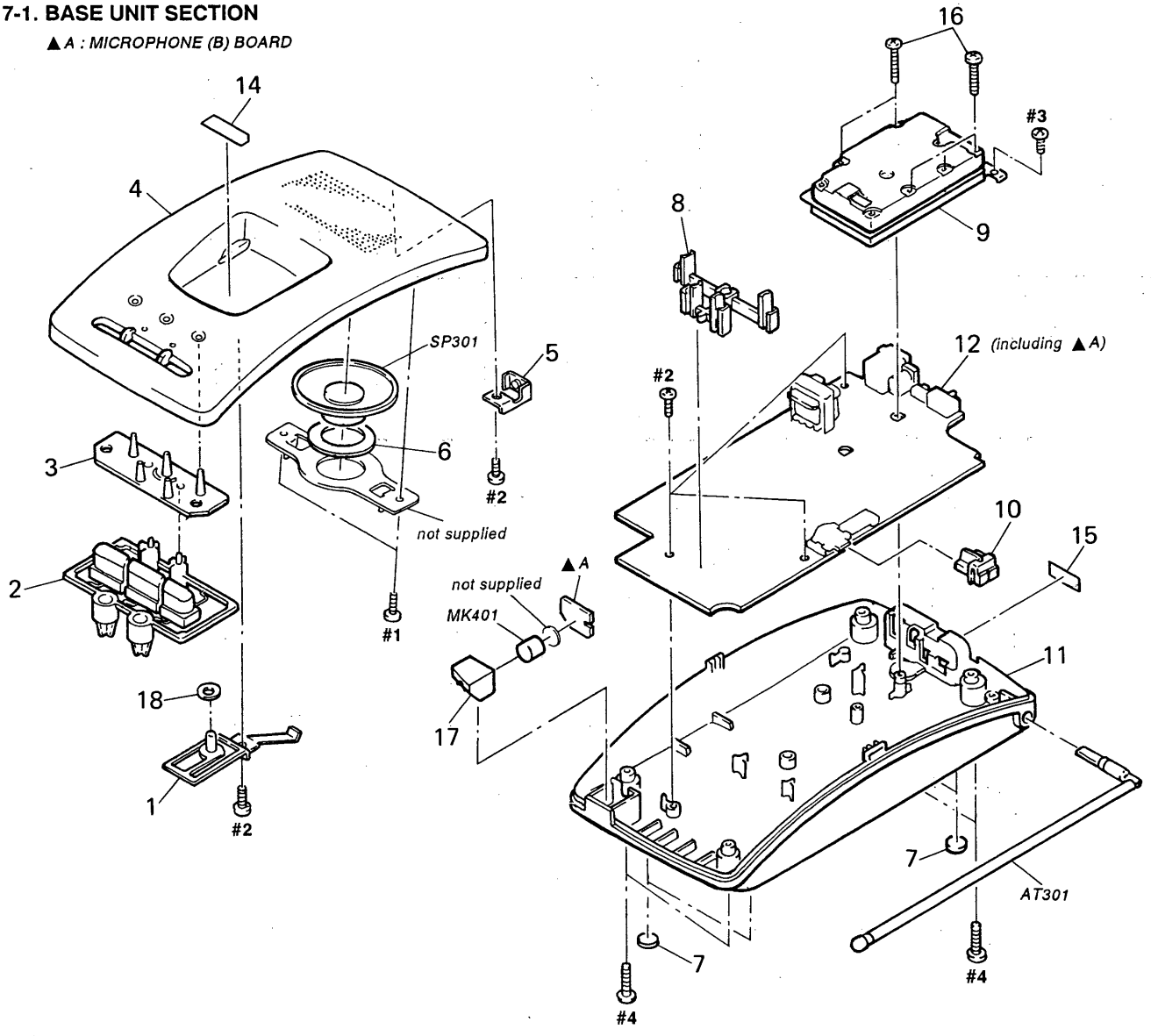
SECTION 7
EXPLODED VIEWS

NOTE :
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " * "are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark)list is given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

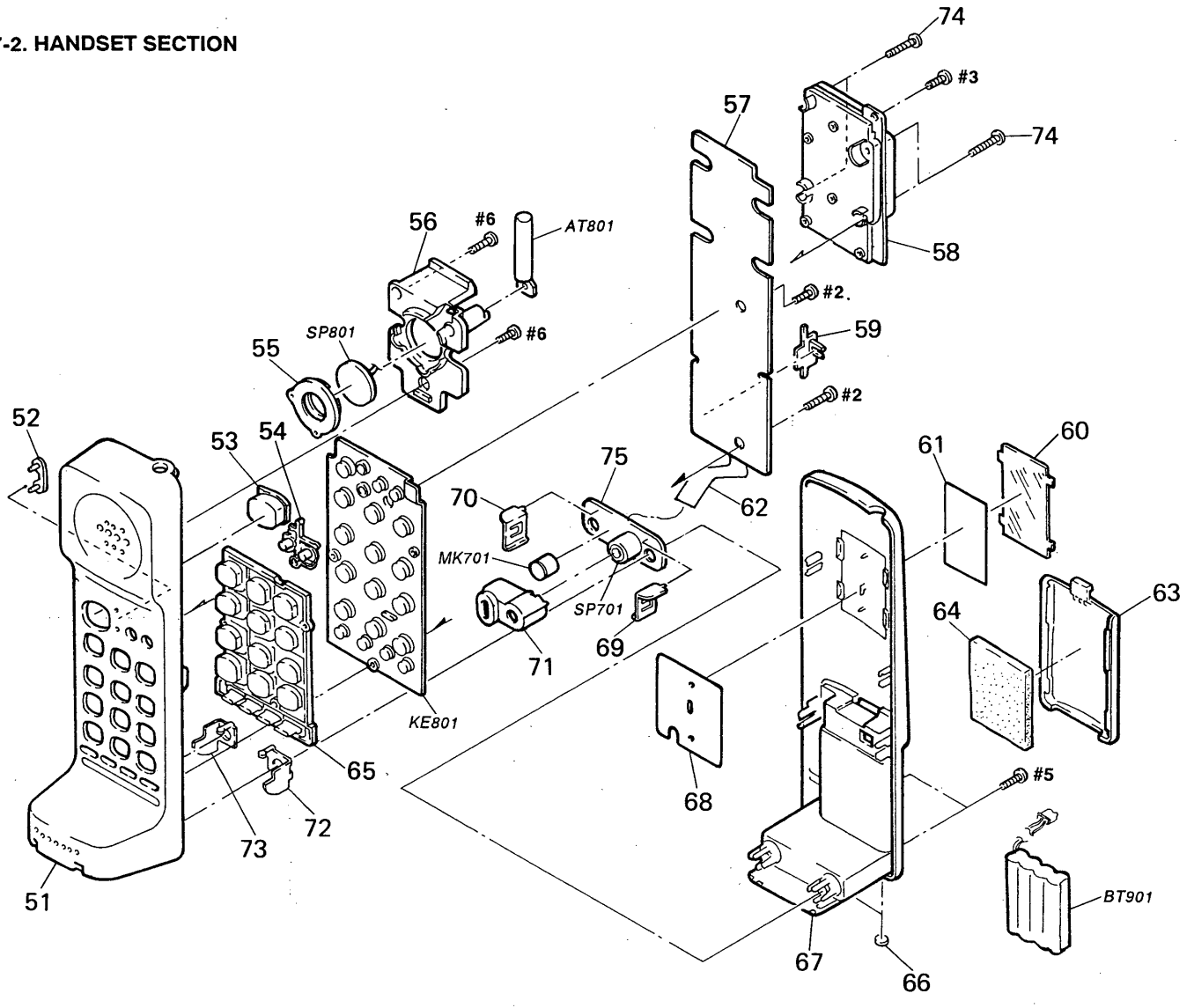
7-1. BASE UNIT SECTION

▲A : *MICROPHONE (B) BOARD*



Ref. No.	Part No.	Description	Remark
1	3-907-054-01	TERMINAL (CHARGE:BASE)	
2	3-907-049-01	BUTTON (PUSH)	
3	3-907-050-01	LENS (LED)	
4	3-907-047-01	CABINET (UPPER), BASE	
5	3-908-545-01	HANGER (PLATE)	
6	3-908-551-01	SPACER (SPEAKER)	
7	3-383-270-01	FOOT, RUBBER	
8	3-907-051-01	HOLDER (LED)	
9	1-467-470-11	RF UNIT (BASE)	
10	3-383-250-11	KNOB (B)	
11	3-907-048-01	CABINET (LOWER), BASE	
* 12	A-3615-630-A	BASE MAIN BOARD, COMPLETE	
14	3-908-547-01	PLATE (CHG), CAUTION	
15	3-907-057-01	LABEL (RINGER)	
16	3-909-896-01	SCREW +BTP 2.6X18	
17	3-909-895-01	HOLDER, MICROPHONE	
18	3-908-738-01	SPACER	
AT301	1-501-475-11	ANTENNA, TELESCOPIC	
MK401	1-542-169-11	MICROPHONE	
SP301	1-503-905-11	SPEAKER (DIA. 5.7cm)	

7-2. HANDSET SECTION



Ref. No.	Part No.	Description	Remark
51	3-907-036-01	CABINET (FRONT), HAND	
52	3-908-739-01	LENS (LED. PORT)	
53	3-907-179-01	BUTTON (TALK)	
54	3-907-041-01	BUTTON (2 GANG)	
55	3-907-180-01	SPACER (SPEAKER)	
56	3-907-039-01	HOLDER (SPEAKER)	
* 57	A-3668-403-A	HAND MAIN BOARD, COMPLETE	
58	1-467-471-11	RF UNIT (HAND)	
59	3-907-040-01	KNOB (SLIDE)	
60	3-371-234-01	COVER, MEMO	
61	3-383-649-01	PAPER, MEMO	
62	1-751-774-11	CABLE, FLAT	
63	3-907-038-01	LID, BATTERY CASE	
64	3-908-737-01	CUSHION	
65	3-908-736-01	BUTTON (12 KEY)	
66	3-371-700-01	FOOT	

Ref. No.	Part No.	Description	Remark
67	3-907-037-01	CABINET (REAR), HAND	
* 68	3-383-650-01	PLATE (H), BLIND	
69	3-383-276-01	PLATE (L), CONTACT	
70	3-383-277-01	PLATE (R), CONTACT	
71	3-907-181-01	HOLDER (2 GANG)	
72	3-907-043-01	TERMINAL (CHARGE:L)	
73	3-907-044-01	TERMINAL (CHARGE:R)	
74	3-909-896-01	SCREW +BTP 2.6X18	
* 75	1-650-683-11	MICROPHONE (H) BOARD	
AT801	1-501-644-11	ANTENNA, HELICAL	
BT901	1-528-489-11	BATTERY PACK	
KE801	1-692-834-11	SWITCH, RUBBER KEY	
MK701	1-542-169-11	MICROPHONE	
SP701	1-529-085-11	BUZZER	
SP801	1-504-473-11	SPEAKER	

SECTION 8
ELECTRICAL PARTS LIST

BASE MAIN

NOTE :
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL : Metal-film resistor
  METAL OXIDE : Metal oxide-film resistor
  F : nonflammable
- Items marked " * "are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : μ , for example :
  uA.... : μ A.... , uPA.... : μ PA....
  uPB.... : μ PB.... , uPC.... : μ PC....
  uPD.... : μ PD....
- CAPACITORS
  uF : μ F
- COILS
  uH : μ H

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
*	A-3615-630-A	BASE MAIN BOARD, COMPLETE			
		**********			
	3-383-250-11	KNOB (B)			
	3-907-051-01	HOLDER (LED)			
		< ANTENNA >			
AT301	1-501-475-11	ANTENNA, TELESCOPIC			
		< CAPACITOR >			
C1	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C2	1-104-329-11	CERAMIC CHIP	0.1uF	10%	50V
C3	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C4	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C5	1-104-760-11	CERAMIC CHIP	0.047uF	10%	50V
C6	1-124-126-00	ELECT	47uF	20%	10V
C7	1-126-160-11	ELECT	1uF	20%	50V
C8	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C9	1-126-160-11	ELECT	1uF	20%	50V
C11	1-126-176-11	ELECT	220uF	20%	10V
C12	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C13	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C14	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C15	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C16	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C17	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C18	1-104-760-11	CERAMIC CHIP	0.047uF	10%	50V
C19	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C21	1-163-245-11	CERAMIC CHIP	56PF	5%	50V
C22	1-104-760-11	CERAMIC CHIP	0.047uF	10%	50V
C23	1-129-702-00	FILM	0.001uF	10%	630V
C24	1-107-762-11	CAP, MYLAR	0.56uF		
C25	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C26	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C27	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C28	1-124-443-00	ELECT	100uF	20%	10V
C29	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C31	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C32	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C33	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C35	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C36	1-163-0 .-11	CERAMIC CHIP	0.01uF		50V
C37	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C38	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C39	1-124-141-00	ELECT	330uF	20%	10V
C41	1-124-455-00	ELECT	100uF	20%	16V
C42	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C43	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C45	1-163-034-00	CERAMIC CHIP	0.033uF		50V
C46	1-124-443-00	ELECT	100uF	20%	10V
C47	1-162-638-11	CERAMIC CHIP	1uF		16V
C48	1-107-763-11	CAP, CERAMIC	0.22uF		
C49	1-104-760-11	CERAMIC CHIP	0.047uF	10%	50V
C52	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C53	1-126-157-11	ELECT	10uF	20%	16V
C54	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C55	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C56	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C57	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C58	1-162-638-11	CERAMIC CHIP	1uF		16V
C59	1-162-638-11	CERAMIC CHIP	1uF		16V
C61	1-126-163-11	ELECT	4.7uF	20%	50V
C62	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C63	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C64	1-124-126-00	ELECT	47uF	20%	10V
C65	1-126-163-11	ELECT	4.7uF	20%	50V
C66	1-124-126-00	ELECT	47uF	20%	10V
C67	1-126-163-11	ELECT	4.7uF	20%	50V
C68	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C69	1-104-329-11	CERAMIC CHIP	0.1uF	10%	50V

BASE MAIN

Ref. No.	Part No.	Description			Remark
C71	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C72	1-162-638-11	CERAMIC CHIP	1uF		16V
C73	1-126-176-11	ELECT	220uF	20%	10V
C74	1-124-126-00	ELECT	47uF	20%	10V
C75	1-124-455-00	ELECT	100uF	20%	16V
C76	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C77	1-163-016-00	CERAMIC CHIP	0.0039uF	10%	50V
C78	1-163-025-11	CERAMIC CHIP	0.001uF		50V
C79	1-163-053-00	CERAMIC CHIP	0.0033uF		50V
C81	1-163-053-00	CERAMIC CHIP	0.0033uF		50V
C82	1-124-443-00	ELECT	100uF	20%	10V
Z1	1-161-055-00	CERAMIC	0.022uF	10%	50V
		< DIODE >			
D1	8-719-911-19	DIODE	1SS119		
D2	8-719-110-83	DIODE	RD36ES-B2		
D3	8-719-029-96	LED	LLP-204RS (POWER)		
D4	8-719-911-19	DIODE	1SS119		
D5	8-719-017-42	DIODE	HSM88WA		
D6	8-719-911-19	DIODE	1SS119		
D7	8-719-994-73	DIODE	HZ7C3		
D8	8-719-911-19	DIODE	1SS119		
D9	8-719-029-97	LED	LLP-204GS (SPEAKER PHONE)		
D11	8-719-029-96	LED	LLP-204RS (HOLD)		
D12	8-719-029-97	LED	LLP-204GS (LINE)		
D13	8-719-029-97	LED	LLP-204GS (CHARGE)		
D14	8-719-800-76	DIODE	1SS226		
		< IC >			
IC1	8-759-249-70	IC	MB88644-HP		
IC2	8-759-089-92	IC	IR3N74AN		
IC3	8-759-249-69	IC	TK11232MTR		
IC4	8-759-632-94	IC	M5223L		
IC5	8-759-632-94	IC	M5223L		
IC6	8-759-511-37	IC	RH5VA28CA-T1		
IC7	8-759-921-81	IC	SN74HC4066N		
IC8	8-759-007-31	IC	MC34018P		
IC9	8-719-902-56	DIODE	PC817		
		< CONNECTOR >			
J1	1-573-752-11	JACK (TEL LINE)			
J2	1-580-727-11	JACK (DC IN 9V)			
J3	1-573-754-11	JACK (TO SPEAKER)			
J4	1-573-754-11	JACK (TO BASE MIC BOARD)			
J5	1-764-398-11	JACK (TO RF BOARD)			
		< MICROPHONE >			
MK401	1-542-169-11	MICROPHONE			

Ref. No.	Part No.	Description			Remark
		< TRANSISTOR >			
Q1	8-729-230-49	TRANSISTOR	2SC2712-YG		
Q2	8-729-216-22	TRANSISTOR	2SA1162-G		
Q3	8-729-216-22	TRANSISTOR	2SA1162-G		
Q4	8-729-230-49	TRANSISTOR	2SC2712-YG		
Q5	8-729-230-49	TRANSISTOR	2SC2712-YG		
Q6	8-729-230-49	TRANSISTOR	2SC2712-YG		
Q7	8-729-207-84	TRANSISTOR	2SC3419-0		
Q8	8-729-216-22	TRANSISTOR	2SA1162-G		
Q9	8-729-216-22	TRANSISTOR	2SA1162-G		
Q10	8-729-230-49	TRANSISTOR	2SC2712-YG		
Q11	8-729-230-49	TRANSISTOR	2SC2712-YG		
Q12	8-729-230-49	TRANSISTOR	2SC2712-YG		
Q13	8-729-207-84	TRANSISTOR	2SC3419-0		
Q14	8-729-216-22	TRANSISTOR	2SA1162-G		
Q15	8-729-230-49	TRANSISTOR	2SC2712-YG		
Q16	8-729-230-49	TRANSISTOR	2SC2712-YG		
		< RESISTOR >			
R1	1-216-089-00	METAL CHIP	47K	5%	1/10W
R2	1-216-089-00	METAL CHIP	47K	5%	1/10W
R3	1-216-089-00	METAL CHIP	47K	5%	1/10W
R4	1-216-049-00	METAL CHIP	1K	5%	1/10W
R5	1-216-049-00	METAL CHIP	1K	5%	1/10W
R6	1-216-049-00	METAL CHIP	1K	5%	1/10W
R7	1-216-049-00	METAL CHIP	1K	5%	1/10W
R8	1-216-103-00	METAL CHIP	180K	5%	1/10W
R9	1-216-113-00	METAL CHIP	470K	5%	1/10W
R11	1-216-077-00	METAL CHIP	15K	5%	1/10W
R12	1-216-097-00	METAL CHIP	100K	5%	1/10W
R13	1-216-111-00	METAL CHIP	390K	5%	1/10W
R14	1-216-107-00	METAL CHIP	270K	5%	1/10W
R15	1-216-109-00	METAL CHIP	330K	5%	1/10W
R16	1-216-105-00	METAL CHIP	220K	5%	1/10W
R17	1-216-077-00	METAL CHIP	15K	5%	1/10W
R18	1-216-025-00	METAL CHIP	100	5%	1/10W
R19	1-216-041-11	METAL GLAZE	470	5%	1/10W
R21	1-216-043-00	METAL CHIP	560	5%	1/10W
R22	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R23	1-216-077-00	METAL CHIP	15K	5%	1/10W
R24	1-216-093-11	METAL GLAZE	68K	5%	1/10W
R25	1-216-101-00	METAL CHIP	150K	5%	1/10W
R26	1-216-115-00	METAL CHIP	560K	5%	1/10W
R27	1-216-091-00	METAL CHIP	56K	5%	1/10W
R28	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R29	1-216-045-00	METAL CHIP	680	5%	1/10W
R31	1-216-186-00	METAL GLAZE	330	5%	1/8W

Ref. No.	Part No.	Description			Remark
R32	1-202-975-11	RES, METAL OXIDE			10K
R33	1-216-049-00	METAL CHIP	1K	5%	1/10W
R34	1-215-864-00	METAL OXIDE	150	5%	1W
R35	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R36	1-216-113-00	METAL CHIP	470K	5%	1/10W
R37	1-216-093-11	METAL GLAZE	68K	5%	1/10W
R38	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R39	1-216-073-11	METAL GLAZE	10K	5%	1/10W
R41	1-216-089-00	METAL CHIP	47K	5%	1/10W
R42	1-216-091-00	METAL CHIP	56K	5%	1/10W
R43	1-216-049-00	METAL CHIP	1K	5%	1/10W
R44	1-216-097-00	METAL CHIP	100K	5%	1/10W
R45	1-216-083-00	METAL CHIP	27K	5%	1/10W
R46	1-216-097-00	METAL CHIP	100K	5%	1/10W
R47	1-216-097-00	METAL CHIP	100K	5%	1/10W
R48	1-216-039-00	METAL CHIP	390	5%	1/10W
R49	1-216-097-00	METAL CHIP	100K	5%	1/10W
R51	1-216-097-00	METAL CHIP	100K	5%	1/10W
R52	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R53	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R54	1-216-089-00	METAL CHIP	47K	5%	1/10W
R55	1-216-073-11	METAL GLAZE	10K	5%	1/10W
R56	1-216-097-00	METAL CHIP	100K	5%	1/10W
R57	1-249-397-11	CARBON	22	5%	1/4W
R58	1-216-073-11	METAL GLAZE	10K	5%	1/10W
R59	1-216-101-00	METAL CHIP	150K	5%	1/10W
R61	1-216-081-00	METAL CHIP	22K	5%	1/10W
R62	1-216-073-11	METAL GLAZE	10K	5%	1/10W
R63	1-216-049-00	METAL CHIP	1K	5%	1/10W
R64	1-216-089-00	METAL CHIP	47K	5%	1/10W
R65	1-216-089-00	METAL CHIP	47K	5%	1/10W
R66	1-216-081-00	METAL CHIP	22K	5%	1/10W
R67	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R68	1-216-073-11	METAL GLAZE	10K	5%	1/10W
R69	1-216-097-00	METAL CHIP	100K	5%	1/10W
R71	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R73	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R74	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R75	1-216-113-00	METAL CHIP	470K	5%	1/10W
R76	1-216-103-00	METAL CHIP	180K	5%	1/10W
R77	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R78	1-249-392-11	CARBON	8.2	5%	1/4W
R79	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R81	1-216-039-00	METAL CHIP	390	5%	1/10W
R82	1-216-049-00	METAL CHIP	1K	5%	1/10W
R83	1-247-733-11	CARBON	33	5%	1/2W
R84	1-216-115-00	METAL CHIP	560K	5%	1/10W
R85	1-216-115-00	METAL CHIP	560K	5%	1/10W
R86	1-216-129-00	METAL CHIP	2.2M	5%	1/10W

Ref. No.	Part No.	Description			Remark
R87	1-216-029-00	METAL CHIP	150	5%	1/10W
R88	1-216-029-00	METAL CHIP	150	5%	1/10W
R89	1-216-049-00	METAL CHIP	1K	5%	1/10W
R91	1-216-049-00	METAL CHIP	1K	5%	1/10W
R92	1-216-049-00	METAL CHIP	1K	5%	1/10W
R93	1-216-049-00	METAL CHIP	1K	5%	1/10W
R94	1-216-049-00	METAL CHIP	1K	5%	1/10W
R95	1-216-049-00	METAL CHIP	1K	5%	1/10W
R96	1-216-033-00	METAL CHIP	220	5%	1/10W
R97	1-216-039-00	METAL CHIP	390	5%	1/10W
R98	1-216-033-00	METAL CHIP	220	5%	1/10W
R99	1-216-033-00	METAL CHIP	220	5%	1/10W
R101	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R102	1-216-049-00	METAL CHIP	1K	5%	1/10W
R103	1-216-085-00	METAL CHIP	33K	5%	1/10W
R104	1-216-101-00	METAL CHIP	150K	5%	1/10W
R105	1-216-129-00	METAL CHIP	2.2M	5%	1/10W
R106	1-216-129-00	METAL CHIP	2.2M	5%	1/10W
R107	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R108	1-216-073-11	METAL GLAZE	10K	5%	1/10W
R109	1-216-081-00	METAL CHIP	22K	5%	1/10W
R111	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R112	1-216-073-00	METAL CHIP	10K	5%	1/10W
R113	1-216-097-00	METAL CHIP	100K	5%	1/10W
R114	1-216-049-00	METAL CHIP	1K	5%	1/10W
R115	1-216-081-00	METAL CHIP	22K	5%	1/10W
R116	1-216-224-00	METAL GLAZE	12K	5%	1/8W
R118	1-216-254-00	METAL GLAZE	220K	5%	1/8W
R119	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R121	1-216-081-00	METAL CHIP	22K	5%	1/10W
R122	1-216-113-00	METAL CHIP	470K	5%	1/10W
R123	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R124	1-259-995-11	CARBON MELF	1K	2%	1/8W
R125	1-259-995-11	CARBON MELF	1K	2%	1/8W
R126	1-216-295-11	METAL GLAZE	0	5%	1/10W
R128	1-260-008-11	CARBON MELF	10K	2%	1/8W
R129	1-249-431-11	CARBON	15K	5%	1/4W
R131	1-216-097-00	METAL CHIP	100K	5%	1/10W
R132	1-216-089-00	METAL CHIP	47K	5%	1/10W
R133	1-216-089-00	METAL CHIP	47K	5%	1/10W
R134	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R135	1-216-049-00	METAL CHIP	1K	5%	1/10W

< RELAY >

RL1	1-515-693-11	RELAY

< SWITCH >

S1	1-553-856-00	SWITCH, TACTIL (SPEAKER PHONE)

BASE MAIN | MICROPHONE (H) | HAND MAIN

Ref.No.	Part No.	Description			Remark
S2	1-553-856-00	SWITCH, TACTIL (HOLD)			
S3	1-553-856-00	SWITCH, TACTIL (INTERCOM)			
S4	1-571-379-11	SWITCH, SLIDE (RINGER)			
S5	1-571-377-11	SWITCH, SLIDE (DIAL MODE)			
		< SPEAKER >			
SP301	1-503-905-11	SPEAKER (DIA. 5.7cm)			
		< TRANSFORMER >			
T1	1-424-054-11	TRANSFORMER, LF			
		< VARIABLE RESISTOR >			
VR1	1-223-554-11	RES, ADJ (RX SENSTIVITY)			
VR2	1-241-325-11	RES, VAR, SLIDE 10K (SPEAKER VOLUME)			
		< CRYSTAL >			
X1	1-579-193-11	VIBRATOR, CRYSTAL (3.579545MHz)			
**********					
*	1-650-683-11	MICROPHONE (H) BOARD			
		**********			
	3-383-276-01	PLATE (L), CONTACT			
	3-383-277-01	PLATE (R), CONTACT			
	3-907-181-01	HOLDER (2 GANG)			
		< MICROPHONE >			
MK701	1-542-169-11	MICROPHONE			
		< SPEAKER >			
SP701	1-529-085-11	BUZZER			
**********					
*	A-3668-403-A	HAND MAIN BOARD, COMPLETE			
		**********			
	1-751-774-11	CABLE, FLAT			
		< ANTENNA >			
AT801	1-501-644-11	ANTENNA, HELICAL			
		< CAPACITOR >			
C601	1-135-089-21	TANTALUM CHIP	6.8uF	10%	20V
C602	1-163-016-00	CERAMIC CHIP	0.0039uF	10%	50V
C603	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C604	1-162-638-11	CERAMIC CHIP	1uF		16V
C605	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C607	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C608	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C610	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C611	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C612	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C613	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C614	1-135-159-21	TANTALUM CHIP	10uF	10%	20V
C615	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C616	1-162-638-11	CERAMIC CHIP	1uF		16V
C617	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C618	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C619	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C620	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V
C621	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C622	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C623	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C624	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C625	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C626	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C627	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C628	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C629	1-162-638-11	CERAMIC CHIP	1uF		16V
C630	1-162-638-11	CERAMIC CHIP	1uF		16V
C631	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C632	1-126-154-11	ELECT	47uF	20%	6.3V
C633	1-124-584-00	ELECT	100uF	20%	10V
C634	1-163-028-11	CERAMIC CHIP	0.0033uF		50V
C635	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C636	1-163-028-11	CERAMIC CHIP	0.0033uF		50V
C637	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C638	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C639	1-164-232-11	CERAMIC CHIP	0.01uF		50V
		< DIODE >			
D601	8-719-017-51	DIODE	HSK120		
D602	8-719-017-42	DIODE	HSM88WA		
D603	8-719-017-51	DIODE	HSK120		
D604	8-719-028-18	DIODE	DSM-10C		
D605	8-719-046-60	DIODE	HZK6C		
D606	8-719-987-09	LED	PG1102W (TALK)		
D607	8-719-987-10	LED	VR1102W (BATT LOW)		
D608	8-719-046-61	DIODE	S1ZB20-4062		
		< IC >			
IC601	8-759-249-68	IC	MB88618-HP		
IC602	8-759-089-92	IC	IR3N74AN		
IC603	8-759-249-69	IC	TK11232MTR		
IC604	8-759-506-76	IC	RH5VA35CA		
IC605	8-759-511-37	IC	RH5VA28CA-T1		

Ref.No.	Part No.	Description			Remark
		< CONNECTOR >			
J601	1-573-754-11	JACK (TO SPEAKER)			
J602	1-573-753-11	JACK (TO BATTERY)			
J603	1-764-398-11	JACK (TO HAND RF BOARD)			
		< RUBBER KEY >			
KE801	1-692-834-11	SWITCH, RUBBER KEY			
		< TRANSISTOR >			
Q601	8-729-216-22	TRANSISTOR	2SA1162-G		
Q602	8-729-230-49	TRANSISTOR	2SC2712-YG		
Q603	8-729-216-22	TRANSISTOR	2SA1162-G		
Q604	8-729-216-22	TRANSISTOR	2SA1162-G		
Q605	8-729-230-49	TRANSISTOR	2SC2712-YG		
Q606	8-729-230-49	TRANSISTOR	2SC2712-YG		
Q607	8-729-230-49	TRANSISTOR	2SC2712-YG		
Q608	8-729-230-49	TRANSISTOR	2SC2712-YG		
Q609	8-729-230-49	TRANSISTOR	2SC2712-YG		
Q610	8-729-230-49	TRANSISTOR	2SC2712-YG		
Q611	8-729-230-49	TRANSISTOR	2SC2712-YG		
Q612	8-729-216-22	TRANSISTOR	2SA1162-G		
		< RESISTOR >			
R601	1-216-073-11	METAL GLAZE	10K	5%	1/10W
R602	1-216-073-11	METAL GLAZE	10K	5%	1/10W
R603	1-216-073-11	METAL GLAZE	10K	5%	1/10W
R604	1-216-073-11	METAL GLAZE	10K	5%	1/10W
R605	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R606	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R607	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R608	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R609	1-216-049-00	METAL CHIP	1K	5%	1/10W
R610	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R611	1-216-093-11	METAL CHIP	68K	5%	1/10W
R612	1-216-097-00	METAL CHIP	100K	5%	1/10W
R613	1-216-073-11	METAL GLAZE	10K	5%	1/10W
R615	1-216-101-00	METAL CHIP	150K	5%	1/10W
R616	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R618	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R619	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R620	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R621	1-216-021-00	METAL CHIP	68	5%	1/10W
R623	1-216-097-00	METAL CHIP	100K	5%	1/10W
R624	1-216-097-00	METAL CHIP	100K	5%	1/10W
R625	1-216-083-00	METAL CHIP	27K	5%	1/10W
R626	1-216-099-00	METAL CHIP	120K	5%	1/10W
R627	1-216-045-00	METAL CHIP	680	5%	1/10W
R628	1-216-049-00	METAL CHIP	1K	5%	1/10W

Ref.No.	Part No.	Description			Remark
R629	1-216-097-00	METAL CHIP	100K	5%	1/10W
R630	1-216-097-00	METAL CHIP	100K	5%	1/10W
R631	1-216-097-00	METAL CHIP	100K	5%	1/10W
R632	1-216-097-00	METAL CHIP	100K	5%	1/10W
R633	1-216-009-00	METAL CHIP	22	5%	1/10W
R634	1-216-113-00	METAL CHIP	470K	5%	1/10W
R635	1-216-043-00	METAL CHIP	560	5%	1/10W
R636	1-216-097-00	METAL CHIP	100K	5%	1/10W
R637	1-216-097-00	METAL CHIP	100K	5%	1/10W
R638	1-216-089-00	METAL CHIP	47K	5%	1/10W
R639	1-216-097-00	METAL CHIP	100K	5%	1/10W
R640	1-216-089-00	METAL CHIP	47K	5%	1/10W
R641	1-216-089-00	METAL CHIP	47K	5%	1/10W
R642	1-216-089-00	METAL CHIP	47K	5%	1/10W
R643	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R644	1-216-049-00	METAL CHIP	1K	5%	1/10W
R645	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R646	1-216-089-00	METAL CHIP	47K	5%	1/10W
R647	1-216-115-00	METAL CHIP	560K	5%	1/10W
R648	1-216-115-00	METAL CHIP	560K	5%	1/10W
R649	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R650	1-216-095-00	METAL CHIP	82K	5%	1/10W
R651	1-216-033-00	METAL CHIP	220	5%	1/10W
R652	1-216-037-00	METAL CHIP	330	5%	1/10W
R653	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R654	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R655	1-216-049-00	METAL CHIP	1K	5%	1/10W
R656	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R657	1-216-049-00	METAL CHIP	1K	5%	1/10W
R658	1-216-049-00	METAL CHIP	1K	5%	1/10W
R659	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R660	1-216-073-11	METAL GLAZE	10K	5%	1/10W
R661	1-216-097-00	METAL CHIP	100K	5%	1/10W
		< SWITCH >			
S601	1-692-306-11	SWITCH (RINGER)			
		< SPEAKER >			
SP801	1-504-473-11	SPEAKER			
		< VARIABLE RESISTOR >			
VR601	1-230-873-11	RES, ADJ, METAL 47K (RX SENSITIVITY)			
		< CRYSTAL >			
X601	1-760-161-11	VIBRATOR, CRYSTAL (3.579545MHz)			

****

SEE ADDITIONAL INFORMATION

Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS	
		**********	
9	1-467-470-11	RF UNIT (BASE)	
58	1-467-471-11	RF UNIT (HAND)	
BT901	1-528-489-11	BATTERY PACK	
SP301	1-503-905-11	SPEAKER (DIA. 5.7cm)	
SP801	1-504-473-11	SPEAKER	
**********			
		ACCESSORIES & PACKING MATERIALS	
		**********	
⚠	1-466-834-21	ADAPTOR, AC (AC-T42)	
	1-696-666-11	CORD, TEL	
	1-696-667-11	CORD, TEL	
	3-395-611-02	WALL MOUNT	
	3-757-568-01	MANUAL, INSTRUCTION (ENGLISH)	
*	3-907-551-01	INDIVIDUAL CARTON	
	3-908-544-01	GUIDE, QUICK REFERENCE	
	7-621-849-10	SCREW, WOOD +R 3.1X13	
	A-3642-169-A	HANGER ASSY	
**********			
		**********	
		HARDWARE LIST	
		**********	
#1	7-685-546-14	SCREW +BTP 3X8 TYPE2 N-S	
#2	7-685-133-19	SCREW +BTP 2.6X6 TYPE2 N-S	
#3	7-682-650-09	SCREW +PS 3X12	
#4	7-685-648-79	SCREW +BTP 3X12 TYPE2 N-S	
#5	7-685-138-19	SCREW +BTP 2.6X16 TYPE2 N-S	
#6	7-685-135-19	SCREW +BTP 2.6X10 TYPE2 N-S	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

9-959-174-11

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Personal Telecommunications Group

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SPP-ER1

SONY
SERVICE MANUAL

US Model

SUPPLEMENT-1

File this Supplement with the Service Manual.

Subject :
ACCESSORIES & PACKING MATERIALS

(SPM-96038)

☛ : **Changed portion**

Page	Former Type			New Type		
	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
58		3-395-611-02	WALL MOUNT (WHITE)		3-395-611-11 ☛	WALL MOUNT (BLACK)

9-959-174-81

Sony Corporation
Personal & Mobile Communication Company

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